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# THE UNIVERSITY OF MINNESOTA

## BULLETIN



Vol. VIII

JUNE 10, 1905

No. 12

### *College of Dentistry.*

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MINNEAPOLIS, MINN.

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THE REGISTRAR,

The University of Minnesota,  
Minneapolis, Minn.

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# The University

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THE UNIVERSITY OF MINNESOTA comprises the following named colleges, schools and departments:

THE GRADUATE DEPARTMENT

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS

THE SCHOOL OF MINES

THE DEPARTMENT OF AGRICULTURE, including—

*the College of Agriculture*

*the School of Agriculture*

*the Dairy School*

*the Short Course for Farmers*

THE COLLEGE OF LAW

THE DEPARTMENT OF MEDICINE, including—

*the College of Medicine and Surgery*

*the College of Homeopathic Medicine and Surgery*

*the College of Dentistry*

*the College of Pharmacy*

The Regents of the University have also entrusted to their charge

THE EXPERIMENT STATION, including—

*the Main Station at St. Anthony Park*

*the Sub-Station at Crookston*

*the Sub-Station at Grand Rapids*

THE GEOLOGICAL AND NATURAL HISTORY SURVEY

THE GRADUATE DEPARTMENT. In each of the colleges, except those of medicine and dentistry, there are advanced courses of study leading to second degrees. These courses are open to graduates of any reputable college upon presentation of diploma.

In the COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, there is a four-years' course of study leading to the degree bachelor of arts. The work of the first year is elective within certain limitations as to the range of subjects from which the electives may be chosen. The remaining work of the course is entirely elective, with the provision that a certain number of long courses be selected. The course is so elastic that it permits the student to make the general scope of the course classical, scientific or literary, to suit the individual purpose.

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY, leading to the degrees analytical chemist or chemical technologist, offers two courses of study of four years each in analytical and applied chemistry.

*A Summer School for Teachers.* A six-weeks' course of instruction is offered, in various University subjects, for those whose school duties prevent them from taking the regular University courses.

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS offers courses of study, of four years each, in civil, mechanical, electrical and municipal engineering leading to the degrees of civil, mechanical, electrical and municipal engineer. This college offers a four-years' course of study in science and technology leading to the degree of bachelor of science, with an additional year leading to the engineer's degree in any one of the various lines offered in the college. This college also offers graduate work leading to the degree master of science.

THE SCHOOL OF MINES offers a four-years' course of study in mining and metallurgy upon completion of which the degrees engineer of mines and metallurgical engineer are conferred.

THE COLLEGE OF AGRICULTURE offers a four-years' course in agriculture. The degree of bachelor of science in agriculture is conferred on completion of the course. Students in this college may specialize along the line of forestry or home economics and secure the degree bachelor of science (in forestry or in home economics).

THE SCHOOL OF AGRICULTURE offers a three-years' course of study and is a training school for practical farm life and in domestic economy. The college of agriculture is open to graduates of this school who have completed the fourth year of work required for admission to the college.

*The Dairy School* offers practical instruction in dairying to those who are actually engaged in the manufacture of butter and cheese.

*The Short Course for Farmers* is designed to be of the greatest help possible to those actually engaged in farming.

THE COLLEGE OF LAW offers a three-years' course of instruction leading to the degree of bachelor of laws. Graduate work leading to the degrees master of laws and doctor of civil law is offered. There is an evening class provided in this college.

THE COLLEGE OF MEDICINE AND SURGERY and THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY offer four-year courses of study of nine months each. Upon completion of either of the prescribed courses the degree doctor of medicine is conferred.

In the colleges of science, literature and the arts, of medicine and surgery, and homeopathic medicine and surgery, there has been established a combined course of six years leading to the degrees of bachelor of science and doctor of medicine.

THE COLLEGE OF DENTISTRY offers a three-years' course of study of nine months each. Upon completion of the prescribed course the degree of doctor of dental surgery is conferred.

THE COLLEGE OF PHARMACY offers a two- or three-years' course of study leading to the degree of pharmaceutical chemist. This college also offers graduate work leading to the degrees master of pharmacy and doctor of pharmacy.

SPECIAL COURSES. In each of the colleges, students of an advanced age and adequate preparation are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

The University offers no correspondence courses.

## The Board of Regents

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CYRUS NORTHROP, LL. D., MINNEAPOLIS, - - - *Ex-Officio*  
The President of the University

The HON. JAMES T. WYMAN, MINNEAPOLIS, - - - - 1907  
President of the Board

The HON. JOHN A. JOHNSON, ST. PETER, - - - *Ex-Officio*  
The Governor of the State

The HON. JOHN W. OLSEN, ALBERT LEA, - - - *Ex-Officio*  
The State Superintendent of Public Instruction

The HON. STEPHEN MAHONEY, B. A., MINNEAPOLIS, - 1907

The HON. O. C. STRICKLER, M. D., NEW ULM - - - 1907

The HON. S. G. COMSTOCK, MOORHEAD, - - - - - 1909

The HON. THOMAS WILSON, ST. PAUL, - - - - - 1909

The HON. B. F. NELSON, MINNEAPOLIS, - - - - - 1909

The HON. A. E. RICE, WILLMAR, - - - - - 1909

The HON. EUGENE W. RANDALL, MORRIS, - - - - 1910

The HON. DANIEL R. NOYES, ST. PAUL, - - - - - 1910

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The HON. GREENLEAF CLARK, LL. D., Died, Dec. 7, 1904

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C. D. DECKER, AUSTIN,  
Secretary of the Board

# Executive Officers

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## THE UNIVERSITY

CYRUS NORTHROP, LL. D., *President*

E. BIRD JOHNSON, B. S., *Registrar*

ERNEST B. PIERCE, B. A., *Assistant Registrar*

C. D. DECKER, *Purchasing Agent and Secretary of  
the Board of Regents.*

## THE COLLEGES

JOHN F. DOWNEY, M. A., C. E., *Dean of the College of Science,  
Literature and the Arts*

GEORGE B. FRANKFORTER, PH. D., *Dean of the School of  
Chemistry*

FREDERICK S. JONES, M. A., *Dean of the College of Engineering  
and the Mechanic Arts*

WILLIAM R. APPLEBY, M. A., *Dean of the School of Mines*

WILLIAM M. LIGGETT, *Dean and Director of Department of  
Agriculture*

WILLIAM S. PATTEE, LL. D., *Dean of the College of Law*

PARKS RITCHIE, M. D., *Dean of the College of Medicine and  
Surgery*

EUGENE L. MANN, B. A., M. D., *Dean of the College of Homeo-  
pathic Medicine and Surgery*

ALFRED OWRE, M. D., C. M., D. M. D., *Dean of the College of  
Dentistry*

FREDERICK J. WULLING, PHM. D., LL. M., *Dean of the College of  
Pharmacy*

## LIBRARIES AND MUSEUMS

WILLIAM WATTS FOLWELL, LL. D., *Librarian*

LETTIE M. CRAFTS, B. L., *Assistant Librarian*

INA FIRKINS, B. L., *Library Assistant*

ANNA L. GUTHRIE, B. A., *Library Assistant*

MARY S. MCINTYRE, B. S., *Librarian of School of Agriculture*

THOMAS G. LEE, M. D., *Librarian of Department of Medicine*

HUGH E. WILLIS, LL. M., *Librarian of the College of Law*

CHRISTOPHER W. HALL, M. A., *Curator Geological Museum*

HENRY F. NACHTRIEB, B. A., *Curator of the Zoological Museum*

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ALLEN W. GUILD, *Superintendent of Buildings*

EDWIN A. CUZNER, *Superintendent of Grounds*





MEDICAL HALL.

# CALENDAR FOR 1905-1906

1905

1906

## JULY

S.	M.	T.	W.	T.	F.	S.
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2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

## AUGUST

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## SEPTEMBER

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## OCTOBER

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## NOVEMBER

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## DECEMBER

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31	..	..	..	..	..	..

## JANUARY

S.	M.	T.	W.	T.	F.	S.
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## FEBRUARY

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## MARCH

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## APRIL

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## MAY

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## JUNE

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# College Calendar

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## FIRST SEMESTER.

1905.

- |           |        |   |
|-----------|--------|---|
| SEPTEMBER | 11-12. | Registration and assignment of seats.   |
|           | 11-15. | Examinations for entrance conditions and advanced standing, 9 a. m. and 2 p. m. |
|           | 16.    | Examination and Registration completed.   |
|           | 18.    | Classes called for regular work.  |
| NOVEMBER  | 30.    | Thanksgiving Day.   |
| DECEMBER  | 23     | Holiday vacation begins.  |

1906.

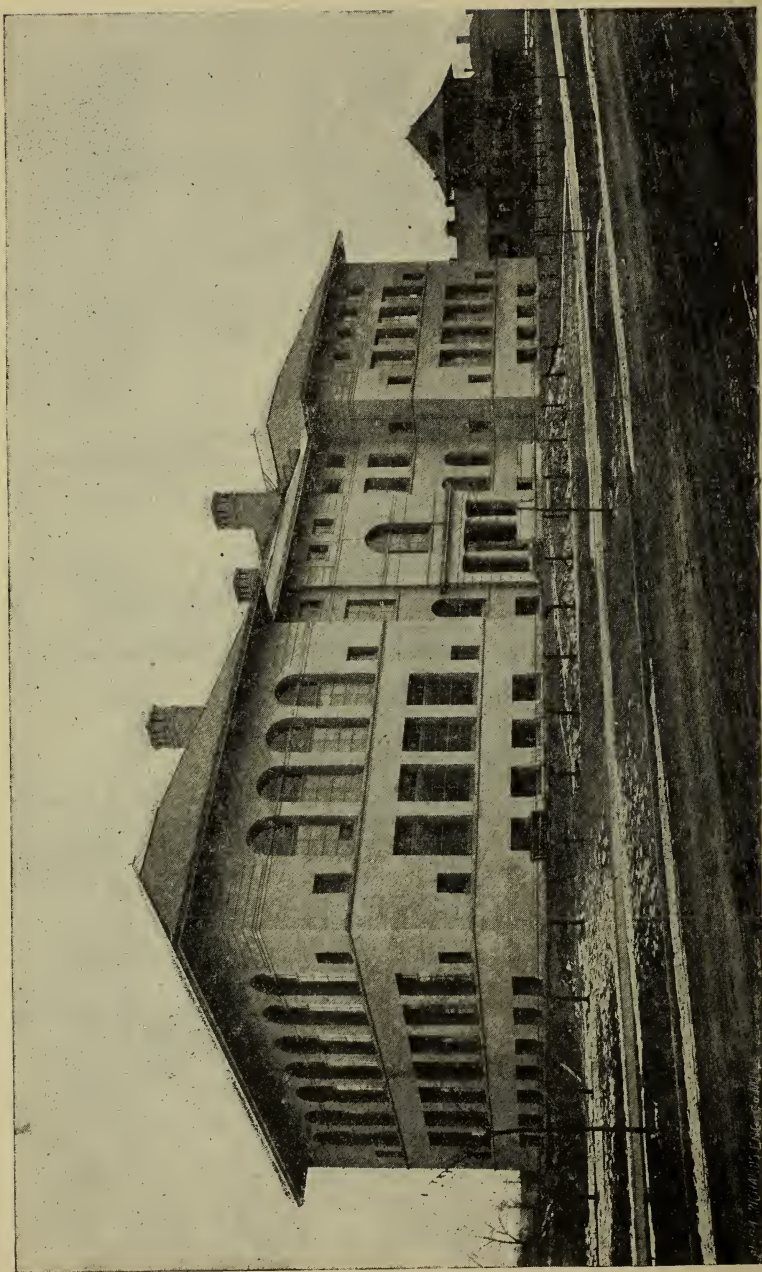
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|-----------------|----|---|
| JANUARY         | 8. | Work resumed.                                 |
| JAN. 27 to FEB. | 3. | Mid-Year examinations, ending first semester. |

## SECOND SEMESTER.

- |          |      |   |
|----------|------|---|
| FEBRUARY | 5.   | Second semester begins.   |
|          | 12.  | Lincoln's Birthday—holiday.   |
|          | 22.  | Washington's Birthday—holiday.  |
| JUNE     | 2-9. | Annual meeting of the faculty to pass upon candidates for graduation. |
|          | 2-9. | Final examinations, primary studies, ending second semester.          |

## COMMENCEMENT WEEK.

- |           |         |   |
|-----------|---------|---|
| SUNDAY    | June 10 | Baccalaureate Service.                                  |
| MONDAY    | June 11 | Senior Class Exercises.                                 |
| WEDNESDAY | June 13 | Alumni Day.   |
| THURSDAY  | June 14 | Commencement Day—The Thirty-fourth Annual Commencement. |
| FRIDAY    | June 15 | Summer Vacation Begins.                                 |



LABORATORY OF MEDICAL SCIENCES.

# The College of Dentistry

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## FACULTY.

CYRUS NORTHROP, LL. D., *President.*

ALFRED OWRE, D. M. D., M. D., C. M., *Dean, Professor of Operative Dentistry and Metallurgy.*

WILLIAM P. DICKINSON, D. D. S., Andrus Building. *Professor of Materia Medica.*

THOMAS B. HARTZELL, M. D., D. M. D., Andrus Building. *Professor of Pathology, Therapeutics and Oral Surgery.*

OSCAR A. WEISS, D. M. D., 506 Masonic Temple. *Professor of Prosthetic Dentistry and Orthodontia.*

E. FRANKLYN HERTZ, D. M. D., Andrus Building. *Professor of Dental Anatomy and Prosthetic Technics.*

JAMES O. WELLS, A. M., D. M. D., Masonic Temple. *Professor of Crown and Bridge-Work and Porcelain Art.*

CHARLES A. ERDMANN, M. D., *Professor of Anatomy.*

RICHARD O. BEARD, M. D. *Professor of Physiology.*

THOMAS G. LEE, A. M., M. D., *Professor of Histology and Embryology.*

WINFIELD S. NICKERSON, Sc. D., *Assistant Professor of Histology.*

H. C. CAREL, B. S., *Professor of Chemistry.*

IRA HARRIS DERBY, B. S. *Instructor in Chemistry.*

FRANK F. WEBBROOK, M. A., M. D., C. M., *Professor of Bacteriology and Pathology.*

S. M. WHITE, B. S., M. D., *Assistant Professor of Bacteriology and Pathology.*

FRANK R. WRIGHT, D. D. S., M. D., *Lecturer on Anaesthesia and Chief of Anaesthesia Clinic.*

MARY V. HARTZELL, D. M. D., Andrus Building. *Instructor in Comparative Dental Anatomy.*

H. M. REID, D. D. S., 423 Medical Block. *Instructor in Prosthetic Dentistry.*

JAMES M. WALLS, D. M. D., St. Paul. *Instructor in Operative Technics, and Demonstrator of Operative Dentistry.*

FRED. S. YAEGER, D. D. S., *Instructor in Crown and Bridge-Work.*

J. N. PIKE, D. D. S., *Demonstrator in Operative Dentistry.*

ANDREW J. WEISS. *Instructor in Technics.*

H. K. READ, M. D. *Demonstrator of Anatomy.*

M. RUSSELL WILCOX, M. D. *Demonstrator in Physiology.*

E. R. HARE, M. D., *Prosecutor of Anatomy.*

FRANK W. SPRINGER, E. E. *Lecturer on Electricity and Its Uses in Dentistry.*

H. V. MERCER, LL. M., *Lecturer on Jurisprudence.*

A. L. MOORE, *Infirmary Clerk.*

## Announcement

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The College of Dentistry of the University of Minnesota offers a progressive course of study which covers three terms in three separate calendar years, beginning early in September and closing the last week in May following. Students who successfully pursue this course are given the degree D. D. S. (Doctor of Dental Surgery), which entitles them to come before any state board of dental examiners for a license to practice dentistry in that state.

The central idea upon which this institution was founded is that dentistry is a branch of the healing art, and that the practitioner should possess a medical education, hence the curriculum is arranged to include the fundamental principles that underlie the practice of medicine. In this connection special attention is called to the fact that while a thorough course is required, practical work is not neglected. The technical courses are very complete and the clinical facilities are unsurpassed.

Another special feature of this institution is that in laboratory work and infirmary practice, students at all times operate under competent instructors, the professors themselves serving as demonstrators, and every stage of each operation receives due criticism and marking.

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The College of Dentistry of the University of Minnesota is a member of the National Association of Dental Faculties, and its diplomas are recognized by the Dental Examining Boards of every state.

## Course of Instruction

The schedule of the studies and work of each year will be in print at the beginning of the session.

### ANATOMY.

#### *Osteology.*

Lectures and recitations upon the human skeleton and supplementary work on the osteology of domestic mammals; three hours each week, for 10 weeks of first semester. Practical study of the skeleton, followed by recitations from the specimen, taken by the class, in sections; 2 hours each section, for 10 weeks, first semester. Required of all first year students.

#### *Syndesmology.*

Lectures, recitations and laboratory demonstrations. Three hours each week, for 4 weeks, first semester.

#### *Myology and angiology.*

Lectures and recitations covering the entire muscular and arterial systems of the human body, with a supplementary study of comparative myology; 3 hours each week, 16 weeks. Laboratory work consists in identifying the muscles of the human body on dissected preparations and showing their actions. Class, in sections, 4 hours each week for 5 weeks.

*Text-books required.* Quain's Anatomy, tenth addition, Vol. 11, parts 1 and II, or Morris' Anatomy.

#### *Splanchnology.*

Descriptive and topographical anatomy of the thoracic viscera, the alimentary and urino-genital organs. Lectures and recitations, 3 hours each week, for 10 weeks.

#### *Descriptive and surgical anatomy.*

Head, neck, trunk and extremities. Lectures and recitations, 3 hours each week for 12 weeks.

#### *The nervous system.*

Cerebro spinal axis and its membranes; the cranial and spinal nerves; the sympathetic nervous system, and the special-sense organs. Lectures and recitations, 3 hours each week for 8 weeks.

*Text-books required.* Morris' Anatomy. Edinger's Anatomy of Brain and Cord.

*Dissecting.* The work extends over a period of eight weeks, requiring 15 hours each week. The dissection of the entire human body is required. The method of work follows that laid down in Holden's Manual of Dissections.

### DENTAL ANATOMY.

The subject is taught by a thorough laboratory course, in which the student studies the teeth by dissection, modeling, carvings and drawings. In the study of dental anatomy, human and comparative, the definition, terminology, notation, form and arrangement of the teeth will be fully considered; also macroscopic and microscopic characteristics of sections, including the study of the relation of enamel to dentine and of the pulp canal.

In the study of structural anatomy, teeth will be selected and mounted upon wooden blocks. They will be filed down until the pulp chamber and canals are exposed, and drawings from actual measurements of the different aspects will then be made and carefully studied. Opportunity for the study of microscopic sections and



lantern slides will also be afforded. The didactic instruction will be illustrated by "chalk talks," lantern slides, lectures, heroic models and skulls.

The standing of the student will be determined by marks given on the cutting of sections, models, drawings and recitations. Lectures and recitations, covering the influence of form and arrangement of the teeth upon caries will also be given.

*Text-book required.* Blacks' Dental Anatomy.

*Collateral reading*—American Text-Book. Comparative Dental Anatomy, (Thompson). Dental Anatomy, Human and Comparative (Tomes').

### COMPARATIVE DENTAL ANATOMY.

The instruction in this subject embraces a comparative study of animal life, giving special attention to number, form and arrangement of teeth, and their adaptation to food habits, ranging from the horny teeth of invertebrates, to the complex tooth-forms of the most highly specialized animals of the present time. The lectures will be illustrated with the stereopticon, casts, models and skulls.

*Text-book.* Thompson. *Collateral reading,* Tomes.

### PHYSIOLOGY.

The subject is taught by recitations and lectures illustrated by practical demonstrations. These embrace the discussion, and as far as possible, the observation of physiological ingredients of the animal body; of the physiology of cell life or the fundamental properties of the cell; the nutritive media, blood, lymph and chyle; of the elementary functions of the nervous system; of the muscular tissues; and the epithelial tissues; of the vascular mechanism; of the alimentary canal; of the organs of secretion, excretion and respiration.

*Text-book required.* Foster's Physiology.

### HISTOLOGY AND EMBRYOLOGY.

This course will consist of lectures, recitations, laboratory work and demonstrations and will include a study of the structure and properties of protoplasm; the cell, its structure and properties, cell division, reproduction, ovum, spermatozoon and formation of blastoderm. A study of the structure and life history of certain type forms of unicellular animals and plants as amoeba, paramoecium yeast, spirogyra, etc., simple metazoa, as hydra, etc.; consideration of the structure of vertebrates; the tissues, as epithelium, connective tissue, cartilage, bone, etc., muscle, nerve, blood and lymph; vascular and lymphatic system. The teeth, enamel, dentine, cementum, pulp, etc. A general outline of the development of the embryo; the formation of the head; development of the jaws, teeth, oral cavity, glands, etc.

N. B.—Recitations, four hours per week; laboratory, six hours per week.

*Text-book required.* Stohrs' Histology.

### CHEMISTRY.

(a) Lectures on the chemistry of the elements.

(b) Laboratory work in general inorganic chemistry of non-metallic and metallic elements.

(c) Lectures on qualitative analysis with special attention to the examination of alloys.

(d) Laboratory work corresponding to course (c) and including the qualitative determination of bases and acids. In this course several alloys are analyzed by each student.

(e) Recitations are carried on throughout the year to test the individual knowledge of each student.

*Text-book required.* Inorganic Chemistry Syllabus and Laboratory Notes on Qualitative Analysis, prepared by the department.

(a) Lectures on the analysis of urine.

(b) Laboratory work in qualitative and quantitative examination of normal and abnormal urine.

(c) Recitations are carried on throughout the year to test the individual knowledge of each student.

(d) Optional courses are offered in quantitative analysis, water analysis, saliva, etc.

*Text-books required.* Inorganic Chemistry Syllabus, and Chemical Urinalysis, prepared by the department.

## MATERIA MEDICA.

This course will include the terminology and general consideration of the sources, classification characteristics and physiologic action of drugs and therapeutic measures employed in dentistry.

Special study will be devoted to the methods of use, administration and physiological action of those of greatest value to the dental practitioner. Germicides, antiseptics and the rest, being fully discussed.

Medicines used for systemic treatment in cases of dental and oral derangements, poisons and their antidotes, dosage and rules for the same, the making of percentage preparations, anesthetic agents, both local and general, dentifrices and mouth-washes, and the writing of prescriptions will receive due attention according to the importance of each.

A feature of this course will be the examination of new remedies, and new methods suggested for the treatment of pathologic conditions of the mouth and teeth.

## BACTERIOLOGY AND PATHOLOGY.

*Bacteriology.* Lectures, recitations and laboratory work, a short general survey of the problems brought to light by bacteriology, and general methods and technique involved, will be followed by special study of certain micro-organisms, such as pyogenic cocci, B. tuberculosis, B. diphtheriae, etc. These studies will be pursued by means of actual cultivation on the various media, the making and examination of microscopic preparation of pure culture, and both cultivation from and microscopic examinations of infected tissues and fluids of the body, by the students themselves.

*Text-Book.* Muir & Ritchie.

*Pathology.* Lectures, recitations and laboratory work. Special study of inflammations and histological changes occurring in the tissues and fluids, constitute the major portion of this course. Some attention is given to the degenerations and the subject of tumors with special reference to the face and oral cavity. Students prepare and examine many of the specimens and receive loan slides of the rarer types, or those difficult of preparation.

## PATHOLOGY AND THERAPEUTICS.

The instruction in this branch will begin with a consideration of the terminology belonging to the subject, followed by the presentation of the lesions of inflammation, local and general, and the degenerate change in the tissues.

The general character of tumors, practical consideration of pathological dentition, interstitial gingivitis, (pyorrhoea alveolaris) pulpitis, pulp nodules, secondary dentine, pericementitis, alveolar abscess, caries of jaw and necrosis, dependent on a diseased condition of the teeth, the various inflammations of the oral cavity, including syphilis and tuberculosis, will all receive due attention.

*Text-book required.* Burchard.

*Therapeutics.* This course is given by lectures and recitations, and clinically. The student being instructed in the special therapeutics of dental and oral diseases; systematic treatment in cases requiring it, receives due consideration. New remedies that give promise of value are fully studied and put to practical test in the infirmary, under direct supervision. Antiseptic and disinfectant methods, as well as dental hygiene, also receive due attention.

## ORAL SURGERY.

The subject of oral surgery will be taught clinically and didactically. The large amount of clinical material presented at the infirmary, furnishes ample opportunity for practical demonstration. Students are required to take charge of cases and carry them through under the advice of the instructor in charge. The didactic lectures will include a full consideration of all the surgical lesions of the oral cavity and associate parts, including oral tumors and the reflex neuroses connected with the fifth pair of nerves; fractures of the maxillae; cleft palate and hare-lip; caries and necrosis of the jaws from constitutional causes; adenoid growths and nasal polypi in their relation to oral surgery; suppuration of the antrum; ulitis; epulis; fungoid pulp; ranula; exostosed teeth; ankylosis and dislocation, implantations, obturators, interdental and other forms of dental splints.

Arrangements have been made with several clinicians connected with the different hospitals of the city to give several clinics. An abundance of material repre-

senting all the different forms of diseased conditions of the mouth and associate parts is to be found in the infirmary service, which will be assigned to students for treatment under direction of the professor of oral surgery.

Clinical lectures on the cases presented will be given from time to time. These cases include alveolo-dental abscesses; caries and necrosis of the maxillary bones; diseased conditions of the antrum; interstitial gingivitis; dislocations and ankylosis; facial neuralgias; tumors of the mouth and associate parts, hare-lip; cleft-palate; implantation cases and fractures.

*Text-book required.* Marshall's Oral Surgery.

### PHYSICAL DIAGNOSIS AND ANESTHESIA.

The subject of physical diagnosis will be taught didactically and practically, and will have direct bearing upon the subject of anaesthesia and will be as complete as its importance demands.

A course in urinalysis will be given in connection with this course.

The technics of anaesthetics, both general and local, receive full consideration. All anaesthetics are administered in the clinic, and full instruction concerning their use is given. The members of the senior class are required, under direction, to administer them and extract teeth under these agents.

*Text-books required.* Tyson, Physical Diagnosis, and Turnbull's Manual of Anaesthetics.

### OPERATIVE DENTISTRY.

*Didactic.* Lectures and recitations illustrated by lantern slides, charts, heroic models and physical apparatus will be given on cavity classification and nomenclature, instrument nomenclature and instrumentation, removal of deposits, rubber-dam and exclusion of moisture; cavity preparation, the enamel in its relation to cavity margins; hypersensitive dentine and pulp treatment, conservative and radical; including discoloration, its cause and treatment; canals, their cleansing and filling; matrices; separating teeth and correcting interproximate space; preparation and insertion of filling materials, including inlays; finishing fillings; clinical operations in their relation to vital tissue, including a review of the technic of conservative operations; the conduct of a practice.

Both junior and senior classes attend these lectures and stand quiz. The questions to each class vary according to their work. An examination will be held at the close of each subject.

*Technical.* The course of technics includes the formation of typical cavities in plaster models, vulcanite and ivory teeth; protecting nearly exposed pulps, and capping exposed pulps; gaining access to canals; cleansing and filling canals with various materials, subsequently examining them to note results; application and retention of the rubber-dam; preparing and inserting the various filling materials, gutta percha, cements, amalgams, tin and gold.

#### *Clinical.*

Before beginning work upon patients, students are given an "infirmary drill," in which they are taught to meet patients, adjust the chair, make examinations, remove deposits and cleanse the teeth, and apply the rubber-dam. In the infirmary, students are under the immediate supervision of the instructors of this branch, who teach them how to diagnose, treat, and prognose cases, beginning with those requiring the simplest service and progressing as their skill increases. This intimate association of the technical and clinical enhances the value of the former and facilitates progress in the latter. Each operation is first presented to the student by a demonstration given by the instructor.

*Text-books required.* American Text-Book Operative Dentistry. Reference, Johnson's Principles and Practice of Filling Teeth.

### OPERATIVE DENTISTRY—ADVANCED COURSE.

*Didactic.* The lectures on operative dentistry are delivered to both second and third year classes. All will be required to attend and stand "quiz." The questions to the senior class will bear more upon the application of principles in practice. An examination will be held at the conclusion of each subject.

*Clinical.* Many clinics demonstrating advanced operations and peculiar methods are given in this year. The student has ample opportunity to put these methods into practice; he will also give special attention to the different forms of pathological

lesions that pertain to daily office practice, and will carry cases to completion, including the restoration of the teeth to usefulness by filling, crowning or bridging, as the case may require. All operations will be marked and record so made, together with a written examination on the didactic work, will form the final test in this branch.

*Text-book required.* Kirk's American Text-Book of Operative Dentistry.

*Reference.* Johnson's Principles and Practice of Filling Teeth.

### PROSTHETIC DENTISTRY.

The work of the first year is almost entirely technical; only such lectures and demonstrations being given as to enable the student to carry on his work in the laboratory intelligently. The work comprises a consideration of impression materials, taking impressions, and making casts and models, making upper and lower retaining plates for a fellow student's mouth; and after which the upper is broken and repaired; making partial upper plate with rubber base, comprising the making of trial plate, taking bite, mounting case in articulator, grinding and arranging teeth for proper articulation, flasking, packing, vulcanizing and finishing. Making full upper and lower sets of teeth upon rubber base, using plain teeth and arranging same in accordance with the Bonwill-law of articulation; making full upper and lower swaged metal plates, comprising the making of models, molding in sand, casting dies and counter-dies; swaging plate to fit model, soldering rim and grinding and polishing metal. Making lower cast-metal plate, comprising the making of models and moulds, casting and polishing.

*Didactic.* Lectures and recitations of the second year will cover the preparation of the mouth for artificial dentures, choice of impression materials, the various base-plates, their composition and preparation. Porcelain teeth, their composition, form and color as related to temperamental types, and their forms as adapted to the various base-plates.

The various methods of retention, and the indications and uses of the different forms of partial plates is fully considered.

*Technical.* Making upper swaged plate of german silver, mounting plain teeth thereon to articulate with model of lower natural teeth. Making upper combination swaged metal and rubber plate, mounting gum-section teeth thereon to articulate with lower cast metal plate. Making partial swaged metal plate reinforcement and clasps. Making partial upper swage metal plate with teeth attached by soldering. Making lower cast metal plate, casting metal around lingual side of teeth and forming gum upon labial and buccal sides with pink rubber. Making lower swaged aluminum plate with turned rim.

*Clinical.* The student enters the infirmary upon completion of the technic course, and puts into practice the principles there acquired.

*Text-book required.* Essig's American Text-Book of Prosthetic Dentistry.

### PROSTHETIC DENTISTRY—ADVANCED COURSE.

*Didactic.* Lectures and recitations upon the use, construction and adjustment of obturators and artificial vela in the treatment of cleft-palate cases. Continuous gum-work, construction and uses, will be fully illustrated and demonstrated.

*Clinical.* An excellent clinic is provided, enabling each student to make not less than twelve dentures, covering the various conditions usually met with in general practice. Cases of unusual occurrence appearing in the clinic will be utilized as special clinics for the advantage of the entire class.

*Text-Book.* Essig's American Text-Book of Prosthetic Dentistry.

### CROWN AND BRIDGE WORK.

*Didactic.* Lectures and recitations will cover the subject of crown and bridge-work.

All forms of crowns and bridges will be taken up in order, and considered from theoretical and practical view-points.

*Technical.* The technics are arranged so that each student is required to construct the completed technics illustrate the following types of crowns and dummies: with root preparation for the former, and to assemble the same in bridges.

The completed technics illustrate the following types of crowns and dummies; the shell crown, the shell crown with porcelain face; the Richmond crown; the



same with removable porcelain face; the Logan crown, with and without band; partial crowns for lingual attachment; porcelain crowns for incisors and cuspids, and the same for bicuspid and molars. Porcelain-faced dummies for bicuspid and molars, and the same with removable facings. Solid metal dummies for bicuspid and molars, and porcelain faced saddle dummies for incisors and cuspids, and the same with removable facings.

### CROWN AND BRIDGE WORK—ADVANCED COURSE.

*Technical.* The construction of porcelain crowns and bridges, and crowns with attachments for the rigid retention of the same.

*Clinical.* The student in this year will perform practical operations in the mouth, covering all forms of crown and bridge-work.

*Text-Book required.* Essig's American Text-Book of Prosthetic Dentistry.

### PORCELAIN INLAYS.

*Didactic.* Lectures and recitations will be given on the indication for inlays, the character and manipulation of the porcelain bodies, cavity preparation, forming the matrix, baking and setting the inlay.

*Technical.* Each student will be required to make at least one inlay in an extracted tooth.

### ORTHODONTIA.

The work in the first year of a two-years' course is technical, with such lectures and demonstrations as will enable the student to perform the laboratory work. In addition to this, the student will be required to attend the lectures given the third year class, so that upon entering the senior year to carry on a clinical case, he will have a general idea of the practice of orthodontia.

The technic course is thorough and complete in its scope, it being deemed necessary that the student should have the requisite skill to make regulating appliances, in order to properly place them in the mouth; in other words, it requires no more skill to make appliances than should be possessed to correctly place and operate them.

Furthermore, no system of "ready-made" appliances is considered wholly adequate or best adapted for the correction of all irregularities, thus the necessity for making them.

The technic work in this year includes a consideration of material for regulating appliances. German silver, its properties, annealing and tempering; drawing wire, making tubing and band material; constructing band with screw; jackscrews of different forms, rotation and expansion appliances, retractors and retainers.

The properties of steels, forging, hardening, tempering and polishing, the making of excavators and chisels, band drivers, band removers and wrenches or keys. Making taps for threading nuts, etc. Each operation is performed by the student after a demonstration by the teacher.

*Text-Book required.* Guilford's Orthodontia.

### ORTHODONTIA—ADVANCED COURSE.

*Didactic.* Lectures and recitations upon the classification of irregularities of the teeth; etiology, local and constitutional; evils arising therefrom; advisability of correction; methods of treatment, including a consideration of the positive or intermittent and constant forces.

The principles of application of force and anchorage are given special consideration, rather than appliances.

Retention and methods of accomplishing the same are fully considered.

*Clinical.* In this year an ample clinic affords opportunity for each student to treat cases of irregularity.

The correction of at least one case by each student is required. The student is also required to observe and inspect the cases of his classmates, thus enabling him to see a large variety of cases with their treatment.

The student will use such of the technic appliances as are adapted to the case in hand and make such new ones from the material left over from the previous year as the case may require.

*Text-Book.* Guilford's Orthodontia.



### METALLURGY.

*Didactic.* This subject will be treated in the following order: Metallurgical terms, processes and the principles upon which they are based; the various metals and their ores; process of extraction and refining; their properties and application in the arts, especially in dentistry; alloys, general, and those used in dental amalgams. Lectures and recitations once a week throughout the year, written quizzes monthly.

*Technical.* Refining of gold and silver, producing pure metals from scraps and fillings. Making alloys for plate, crown and bridge-work, solders and alloys for dental amalgams.

Special attention is given to the melting, casting, cutting, annealing and testing of dental amalgam alloys. Each student will be required to provide metal scraps for refining, and metals for amalgam alloys with which to produce by the processes named, metals and alloys, which will be retained by him for future use.

*Text-book required.* Hodgen's Practical Dental Metallurgy.

### USES OF ELECTRICITY IN DENTISTRY.

A course of laboratory instruction will be given upon the different forms of batteries, dynamos and motors in use in dental practice. Their construction, use, care and operation. Electricity as used in surgery and for therapeutic purposes, including application of the x rays, will be made clear by laboratory demonstrations and practical application.

### DENTAL JURISPRUDENCE.

A course of lectures will be given upon the special duties, obligations and privileges of professional men, with respect to their patients, fellow practitioners and the general public. Laws relating to expert witnesses, cases of alleged malpractice, liabilities incurred from septic infection, etc., will have due consideration.

The enactments regarding the attainment of legal standing as practitioners in Minnesota and other states will also be fully explained.

## General Information

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### THE COLLEGE YEAR.

The seventeenth annual session of this college opens Monday, September 11, 1905, and closes on Saturday, June 2, 1906.

The technic and laboratory courses begin Monday, September 18.

The college year will be divided into semesters, the first ending January 27, 1905. The succeeding week will be devoted to the mid-winter examinations. The second semester begins Monday, February 5. The lecture courses will close June 2, and the final examinations of the year begin on Monday, June 4.

Practical work for both the senior and junior classes will continue until June 2.

Commencement exercises will occur in common with the other departments of the University on Thursday, June 14, 1906.

All statements in this announcement as to courses of study, conditions, requirements or fees, have reference to or binding force only upon the session of 1905-1906, unless otherwise definitely stated.

### QUALIFICATIONS FOR MATRICULATION.

The requirements for admission to the College of Dentistry are graduation from an accredited four-year high-school course, or its equivalent, and a credit in manual training. Failing to have the latter, the prospective student will be required to demonstrate, by test, the possession of mechanical capability.

If the applicant has no credit in Latin, he will be required to take a course in a private class, and for which a fee is charged. After the present session all students will be expected to furnish the Latin credit upon matriculation.

The "equivalent" of a high-school graduation will be twelve one-year credits; a "credit" representing the ground covered in a high-school study, for a course of at least thirty-six weeks, five recitations per week.

Students wishing to matriculate in this school, must present credentials signed by a city, county or state superintendent of schools, a principal of an accredited high school or academy, or the state high school board.

A regulation blank, upon which to make out these certificates, will be found inside back cover of this Bulletin.

Students not having the above credentials, or an insufficient number of them, may take examinations before a committee appointed by the president, from the college of science, literature and the arts, of the University.

Examinations are held only in the English language.

### ENROLLMENT.

Students will be assigned seats in order of, and at the time of their matriculation. Such matriculation and assignment of seats will be had in the office of the registrar of the University, in the library building.

Seats in the amphitheatre, laboratory benches and lockers, as well as chairs and lockers in the infirmary, are assigned to students in the order of their matriculation.

### ADVANCED STANDING.

Applicants for advanced standing must present satisfactory evidence of possessing the preliminary educational qualification required of the class they desire to enter.

They must also satisfy the professors of the branches from which they wish to be exempt, that the work pursued by them in other institutions was equal in scope and amount to that passed by the class they propose to enter.

No credits are accepted unconditionally, the Faculty reserving the privilege of examining any applicant when deemed necessary.

All certificates pertaining to advanced standing must be presented to the dean who will send them to the respective professors for acceptance or report of further requirements for acceptance.

Students coming from other schools must make up their technic conditions under supervision of the instructors of this school, **at the convenience of the instructor.**

One-year credit will be allowed graduates in medicine, but the dental technic branches of the first year must be taken and completed before advanced work in these branches can be entered upon, and the courses in dental pathology, dental histology and bacteriology taken as they occur in the curriculum.

When a student, for any cause, transfers from one college to another of the National Association of Dental Faculties, his certificate of attendance and standing must be verified by the dean of the school he withdraws from. This is done by correspondence between the executive officers of the two schools.

The dates for examinations in anatomy, physiology, histology and chemistry, for students having conditions, and applicants for advanced standing in those branches, will be held on the following dates.

September 14th, 9 a. m.—Anatomy, first year.

September 14th, 2 p. m.—Histology, first year.

September 15th, 9 a. m.—Physiology, first year.

September 15th, 9 a. m.—Anatomy, second year.

September 15th, 2 p. m.—Chemistry, first year.

### ATTENDANCE AND DISCIPLINE.

The college hours are from 8:30 a. m. to 12:30 p. m., and from 1:30 to 5:30 p. m.

Attendance upon all lectures, and infirmary and laboratory hours as scheduled is obligatory. A complete record of each student's attendance is kept, and all absences and tardinesses are noted.

All laboratory courses must be taken in full and must invariably be entered during the first week in which they begin.

Habitual absence, continued indifference to study, or persistently poor scholarship may subject the student to temporary or permanent suspension.

The practice of dentistry by students, except under the direct superintendence of a preceptor, is prohibited by law in the state of Minnesota, and a rule of the National Association of Dental Faculties to which this college belongs, reads as follows: "Students in attendance in colleges of this association are required to obey the laws regulating the practice of dentistry in the various states, and, failing to do this, shall not be again received into any college of this association." Any student detected in violating this rule will be suspended or expelled.

The connection of any student with this college may be terminated at any time, without a return of fees, whenever such action may be advisable on the ground of immorality, or disorderly conduct, or a failure to conform to the established rules.

### BREAKAGE AND LOSS.

A deposit of five dollars (\$5.00) will be required in addition to the first semester fee, to cover loss of and breakage or damage to college property. This will be returned at the end of the year, providing there is no charge against the student. This fee is to be deposited with the University accountant each year when the student matriculates.

### INSTRUMENTS, BOOKS, TOOLS AND MATERIALS.

All students are required to provide themselves with instruments, books, tools and materials as prescribed by the college. These can be obtained in the city, with the usual discount to students. The first installment must be procured and approved by the instructor before seats can be assigned in the technic laboratories.

### COLLEGE MUSEUM.

Members of the dental profession, and others interested, are invited to contribute pathological specimens, casts of malformations, irregularities of the teeth, models, charts, drawings, etc., which may be useful as illustrative matter in the lecture rooms.

### ALUMNI ASSOCIATION.

An association of the graduates of the college has its annual meeting during commencement week.

### CLINICAL FACILITIES.

The opportunities for acquiring a practical knowledge of both operative and prosthetic procedure is unsurpassed, the material presented in the infirmary clinic being more than ample for all purposes of instruction.

### GRADUATION.

At the close of the third year, a student who has passed all examinations satisfactorily, receives the degree of Doctor of Dental Surgery (D. D. S.), upon the following conditions:

He must be twenty-one years of age.



He must have attended four full courses of instruction, the last of which must have been in this college.

He must have passed the full requirement in dissections and must have performed satisfactorily in the college all the required operations in operative and prosthetic dentistry.

Immorality, disorderly conduct, or a failure to conform to the rules of the college, will be deemed a sufficient bar to any receiving his degree.

Under no circumstances are degrees *in absentia* conferred by this college.

Students failing to graduate will be required to pay a fee for completing each branch of unfinished work.

### FEES AND EXPENSES.

The annual fee, which includes all charges for matriculation, lecture and laboratory courses, and dissections is, one hundred dollars (\$100.00).

One-half of this fee will be payable when the student matriculates. The accountant's receipts for the portion will entitle the holder to take entrance examinations and to classify. The second half will be payable at the opening of the second semester. These receipts must be presented to, and countersigned by the Dean before entering upon the work of each semester.

There is no fee for diploma upon graduation.

If the applicant fails to pass the entrance examinations, his fee will be returned by the accountant.

In addition to the college fee there is a rental fee of \$2.00 for a microscope, in each semester when its use is required, provided the student is not supplied with a satisfactory instrument.

There is also a rental fee of \$1.00 for microscope in the course of bacteriology in the third year. It is an advantage for the student to possess his own microscope, and assistance in the selection of one will be given **when desired.**

There are no free scholarships, and no students are received for less than the regular fee.

No student will be permitted to take final examinations until after all fees and charges have been paid.

After having entered upon the course of study, fees are not returnable, and no rebate will be recommended should a student discontinue work, but the faculty may recommend the application of a part to the succeeding year.

Senior students failing to graduate, will be required to pay a fee of ten dollars (\$10.00) for each branch examined in or taken subsequent to the close of the session in which the failure occurred. A fee of \$10.00 will also be charged for the completion of each branch of unfinished laboratory or practical work.

Rooms and board convenient to the college can be obtained at prices ranging from \$3.00 to \$5.00 per week according to accommodations.

Furnished rooms without board, from \$5.00 to \$10.00, and unfurnished rooms from \$4.00 to \$7.00 per month.

A list of rooms and boarding places is kept by the secretary of the University Y. M. C. A., to whom inquiries or applications may be addressed.

From one hundred and fifty to one hundred and seventy-five dollars are necessary to defray the expenses of the first month. These include tuition, for first semester, board and room for the month, and books, instruments, tools, and materials for the year, which must be purchased before commencing work. In order to avoid embarrassment, the student should bring sufficient funds to cover these first expenses.

For further information, address College of Dentistry, University of Minnesota, Minneapolis.

## Students

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### GRADUATES—CLASS 1904.

Barney, Paul Wood, Mankato.	McRae, Duncan Adrian, Sleepy Eye.
Bell, Charles Ulysses, Cedar Mills.	Mihleis, Edwin Wm. Geo., Ellsworth, Wis.
Bennett, David William, St. Peter.	Montelius, George Alfred, Grove Lake.
Braafladt, Theodore Olaf, Belview.	Nelson, Albert Carlos, Litchfield.
Cox, Arthur Henry, Wasioja.	Reed, Albert Alonzo, Humboldt, Iowa.
Cullum, Walter Cornell, St. Paul.	Rice, Arthur Nelson, Adrian.
Freeburg, Jay Monroe, Charles City, Iowa.	Rider, Don DuVello, Minneapolis.
Green, Robert O., Florence.	Schacht, Joseph August, Fergus Falls.
Grey, William Alexander, Cadott, Wis.	Steadman, Guy Benjamin, Anoka.
Johnson, Leonard James, Hutchinson.	Strong, William Henry, Graceville.
Leffek, William Joseph, Ellendale, N. D.	Sture, Walmer Turner, Center City.
Lillehei, Axel Olai, Luverne.	Swenson, Carl August, Ubet, Wis.
*McNeil, Walter Hill, Alexandria.	

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\*Diploma granted by the Board of Regents upon completion of work.

THIRD YEAR CLASS—56.

Baker, Henry W., Wells.	Kubat, William,
Bancroft, Merton Eugene,	Blooming Prairie.
Delton, Wis.	LaDue, Thomas Irving,
Barton, Harry Elijah,	Fertile.
Flint, Mich.	Lukkason, Joseph, Rushford.
Bennett, Charles Edward,	Lyon, Harry David,
Granite Falls.	Minneapolis.
Bittner, Arthur Hugo, St. Paul.	Maves, Herman Albert,
Borgendale, Edward,	St. Peter.
Montevideo.	McIntyre, Ralph Emerson,
Bowe, John Francis, Waseca.	River Falls, Wis.
Brastad, Olaf William,	Miller, Charles Warren,
Minneapolis.	St. Peter.
Brown, Thos. Andrew,	Moran, Michael Aloysius,
Lake City.	Pine Island.
Bugbee, Clyde Sereno,	Moskau, Gilbert,
Minneapolis.	Mayville, N. D.
Burgan Frederick, Preston,	Nelson, Charles, Glencoe.
Minneapolis.	Nelson, Elof, Amor.
Burt, Leonard Henry, Chokio.	Nelson, Geo. Andrew, Kasson.
†Bush, Charles Arthur,	Newgord, Harry Clarence,
Northfield.	Minneapolis.
Carr, Alvin Eugene,	Olson, Theodore John,
Minneapolis.	St. James.
Casselman, Don, Huron, S. D.	Porter, Harold Ferdinand,
Corson, Walter Hartley, Ada.	Willmar.
Curtin, James, Arlington.	Putney, Charles A., Moorhead.
Deering, Joseph Wm.,	Remele, Henry William,
West Superior., Wis.	Sleepy Eye.
Dittmarsen, John Elias, Irving.	Sheehan, Thomas Vincent,
Doyle, Milo Hayden,	Luverne.
Bellingham.	Shellman, Joseph Frederick,
Foster, Charles White,	Fergus Falls.
St. Paul.	Spurr, Stephen Howard
Gillam, Clarence Gifford,	(M. D.), St. Paul.
Windom.	Staples, Forest Edward,
Glimme, Knute Arthur,	Howard Lake.
Kenyon.	Strang, Cassius Clinton,
Hamlon, Chauncy Wilfred,	Duluth.
Jackson.	Sweeney, Eugene Sylvester,
Hanson, Henry Alexander,	Garfield.
Fergus Falls.	Taylor, William Knox,
Ihle, Edward Anthony,	Minneapolis.
Eau Claire, Wis.	Vandersaal, William,
Ingalls, Raymond Eugene,	Pomeroy, Pa.
St. Paul.	Wallace, Robert, Fergus Falls.
Johnson, Alfred C.,	White, Frank Denton,
Winthrop.	Minneapolis.
	Youngberg, Everett LeRoy,
	Cannon Falls.

†First semester.

## SECOND YEAR CLASS—37.

Alrick, Owen Kinnie,	Lier, Emil Hjalmar, Ashby.
Minneapolis.	Malmgren, Robert Victor,
Amundson, Frederick Arthur,	Young America.
St. Peter.	Melvin, Merton Reuben,
Anderson, Carl Ernrid,	Wheaton.
Kennedy.	Monten, Albin Swan, Hopkins.
Baker, Harry Jacob,	Morstain, William Basil,
Rose Creek.	Minneapolis.
Bjorge, Oscar, Lake Park.	Nilsson, Verner Hjalmer,
Blix, Adolph Leonard,	Minneapolis.
Granite Falls.	Olsen, Carlton Percy,
Blondel, Louis Dale,	Minneapolis.
Spencer, Iowa.	Rollin, Claus Albin, Sweden.
Boerner, Wm. Frederick Ernest	Rowe, Arthur Taylor,
Buffalo.	Casselton, N. D.
Corser, Wayne Bliss,	Selvig, Carlus, Rushford.
St. Paul.	Smith, Walter Herbert, Fairfax.
Fortier, Stephen, Little Falls.	Styer, Matthias Lafayette,
Frederickson, Marcus,	Caledonia.
Lakefield.	Tomasek, Joseph Leo,
Heddy, Ula Emil, Minneapolis.	Wauconia, Iowa.
Huntington, Walter Sandberg,	Turner, George Chester,
Marion, Iowa.	Lanesboro.
Jung, William Richard,	Wahlstrom, Isidore John,
Fergus Falls.	Fergus Falls.
Junglaus, Edward Henry,	Weaver, Mortimer Ralph,
Glencoe.	Spencer, Iowa.
Korfhage, Louis William,	Wells, Amos S, Newberry, S. C.
St. Paul.	Winther, Conrad Peter,
Layne, James Thomas,	New Paynesville.
Rushford.	Woodbury, Leslie Maley,
Lestico, Alexander Cameron,	Zumbrota.
Glencoe.	

## FIRST YEAR CLASS—28.

Aarnes, Walter Stain,	Damon, George Myron,
Montevideo.	Worthington.
Barnitz, Robert Andrew,	Fitzgerald, Francis Gerald,
Bauer, Theodore Philip,	Lake City.
Minneapolis.	Griffith, Charles Arthur,
†Bigue, Arthur Edmund,	Hector.
St. Paul.	Harmon, Harry Weston,
Birnberg, Ansel, St. Paul.	Faribault.
Borgwardt, George,	Heicie, Orlen, St. Paul.
Peterson, Iowa.	Higgins, Clifford Crumbaugh,
Butter, Archibald Beery,	Sidney, Ohio.
Moline, Ill.	Hollern, Edward John,
Carlaw, Allen Chester,	Sauk Rapids.
Northfield.	Jones, Rolland Ralph,
	Minneapolis.



May, Clyde Luther,  
Young America.  
Page, Wright Benton,  
Minneapolis.  
†Peck, Earl Arthur,  
Spencer, Iowa.  
Pinney, Egbert Ralph,  
Mankato.  
Purdon, Cleveland Anderson,  
Wahpeton, N. D.

Ramstead, Henry George,  
Minneapolis.  
Rauch, Charles, Minneapolis.  
†Schladinski, Frank Edward,  
Winona.  
Sivright, Guy Herbert,  
Hutchinson.  
Smith, Nat Cyrus, Fairhaven.  
Thomas, Thomas Heathcote,  
Spencer, Iowa.  
Weaver, Homer Abraham,  
Spencer, Pa.

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†First Semester.















University of Minnesota.
COLLEGE OF DENTISTRY.

Recommendation for Admission from Accredited Schools.

Dated.....

Name ..... Write ALL Names in full.

Date of Birth ..... Birthplace.....

Present Address .....

I hereby certify that the above named person has satisfactorily completed work in High School branches, as indicated below, in the.....course of the..... High School (or Academy) Town (or City) of ..... State of....., during the years....., and was graduated.....

And further, believing him to be a person of good moral character and studious habits, I recommend that he be admitted to the Freshman Class of the COLLEGE OF DENTISTRY, University of Minnesota.
(The school officer certifying to the credits below, will please draw a line through the branches not taken and enumerate all others, with time and credits, in the school named.)

Table with 5 columns: STUDIES, No. Weeks Study, No. Hours per Week, Grade, TEXT BOOKS, REMARKS. Rows include English Composition, Elementary Algebra, Higher Algebra, Plane Geometry, Solid Geometry, Physics, Latin, Grammar, Caesar, Cicero, Vergil, German, French, History (Ancient, Medieval, English, United States), Botany, Physiography, Chemistry, Manual Training, Drawing, Shop Work.

The passing grade in this school is.....

.....Principal.

.....Present Residence.

- (1) Twelve one-year credits are required for admission. A "credit" represents the amount of work done in a high school course of thirty-six weeks, five recitations per week. Certificates to be accepted must indicate these facts. It is not essential to give the grade, but the subjects must be marked "Pass" to show they have been successfully completed.
- (2) Students wishing to matriculate in this school, must present credentials signed by a City, County or State Superintendent of Schools, a principal of an accredited High School or Academy, or the State High School Board.
- (3) A separate blank must be filled out for each school attended. Additional ones furnished on request.
- (4) All writing upon this certificate must be done with ink.

THE APPLICANT WILL ALSO FILL OUT WITH CARE THE FOLLOWING.

Name of parent or guardian.....

Post-office address of parent or guardian .....

How long since you attended school?.....

What occupation have you been engaged in since then?.....

Have you had experience in mechanical pursuits, if so what?.....

Have you a natural or acquired taste for mechanics?.....

Is your eyesight good?..... Is your general health good?.....

Give for reference, name, post-office address of your family physician, pastor, or some well known citizen of your town or city.

SEND THIS RECOMMENDATION AND APPLICATION DIRECTLY TO THE DEAN OF THE COLLEGE.







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## BULLETIN



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Vol. IX.                      JULY 31, 1906                      No. 11

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MINNEAPOLIS, MINNESOTA.

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THE REGISTRAR,

The University of Minnesota,

Minneapolis, Minnesota.

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# The University

The University of Minnesota comprises the following named colleges, schools, and departments :

THE GRADUATE SCHOOL

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS

THE SCHOOL OF MINES

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY

THE COLLEGE OF EDUCATION

THE UNIVERSITY SUMMER SCHOOL

THE DEPARTMENT OF AGRICULTURE

The College of Agriculture

The School of Agriculture

Short Course for Farmers

The Dairy School

The Crookston School of Agriculture

The Experiment Stations:

The Main Station at St. Anthony Park

The Sub-Station at Crookston

The Sub-Station at Grand Rapids

THE COLLEGE OF LAW

THE COLLEGE OF MEDICINE AND SURGERY

THE SIX-YEAR MEDICAL COURSE

THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY

THE COLLEGE OF DENTISTRY

THE COLLEGE OF PHARMACY

THE GEOLOGICAL AND NATURAL HISTORY SURVEY

In the COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, there is a four-year course of study leading to the degree, Bachelor of Arts. The work of the first year is elective within certain limitations as to the range of subjects from which the electives may be chosen. The remaining work of the course is entirely elective, with the provision that a certain number of long courses be selected. The course is so elastic that it permits the student to make the general scope of his course classic, scientific or literary, to suit his individual purpose.

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS offers courses of study, of four years each, in civil, mechanical, electrical and municipal engineering, leading to the degrees of Civil, Mechanical, Electrical and Municipal Engineer. This college offers a four-year course of study in science and technology, leading to the degree of Bachelor of Science, with an additional year leading to the engineer's degree in any one of the various lines

offered in the college. This college also offers graduate work leading to the degree Master of Science.

THE SCHOOL OF MINES offers four-year courses of study in mining and metallurgy upon completion of which the degrees, engineer of mines and metallurgical engineer, are conferred.

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY, leading to the degrees Analytical Chemist and Chemical Technologist, offers two courses of study of four years each in analytical and applied chemistry.

THE COLLEGE OF EDUCATION receives students who have completed two years of college work, and offers them a three-year course leading to the master's degree. At the end of the second year students may receive the bachelor's degree and the University teacher's certificate. Graduates of other colleges, who have pursued an equivalent course in education, may enter for the master's degree.

THE GRADUATE SCHOOL gathers into a single organization and unites for the purposes of administration all the activities of the University in all its schools and colleges in so far as they relate to advanced instruction offered for the second or higher degrees, viz.: Master of Arts and Doctor of Philosophy conferred for advanced, non-technical study; Master of Science and Doctor of Science for technical study; Master of Laws and Doctor of Civil Law for advanced legal studies. The privileges of this school are in general open to all Bachelors of Arts, of Science, pure and applied, and of Laws, from reputable colleges and universities having courses substantially equivalent to those at this university.

THE UNIVERSITY SUMMER SCHOOL is organized for a six weeks session in June and July under the direction of the State Department of Public Instruction. In the elementary section courses are given for teachers in all the common school branches and in preparation for the state teachers' certificates. In the college section courses are given for high school teachers and in preparation for the state professional certificate. Students who desire University entrance credits and credits toward the bachelor's degree may secure these by pursuing not more than two full courses at each session.

SPECIAL COURSES. In each of the Colleges, students of mature age and adequate preparation are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

EXTENSION LECTURES. Professors in the University are prepared to give a limited number of extension lectures from time to time. For subjects, speakers, terms and dates, application should be made to the Chairman of the Committee on University Extension.

THE COLLEGE OF AGRICULTURE offers a four-year course in agriculture. The degree of Bachelor of Science, in Agriculture, is conferred on completion of the course. Students in this College may specialize along the line of forestry or of home economics and secure the degree Bachelor of Science (in Forestry, or in Home Economics).

THE SCHOOL OF AGRICULTURE offers a three-years course of study and is a training school for practical farm life and in domestic economy. The College of Agriculture is open to graduates of this School who have completed the fourth year of work required for admission to the college.

*The Dairy School* offers practical instruction in dairying, specially de-

signed for those who are actually engaged in the manufacture of butter and cheese.

*The Short Course for Farmers* is designed to be of the greatest help possible to those actually engaged in farming.

*The Crookston State School of Agriculture* offers a course of study quite similar to that given in the School of Agriculture.

THE COLLEGE OF LAW offers a three-years course of instruction leading to the degree of Bachelor of Laws. Graduate work leading to the degrees, Master of Laws, and Doctor of Civil Laws is offered. An evening class is provided in this college.

THE COLLEGE OF MEDICINE AND SURGERY AND THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY offer four-year courses of study, of nine months each. Upon completion of either of the prescribed courses the degree, Doctor of Medicine is conferred.

In the Colleges of Science, Literature and the Arts, of Medicine and Surgery, and of Homeopathic Medicine and Surgery, there has been established a combined course of six years, leading to the degrees, Bachelor of Science, and Doctor of Medicine.

THE COLLEGE OF DENTISTRY offers a three-years course of study, of nine months each. Upon completion of the prescribed course the degree of Doctor of Dental Surgery is conferred.

THE COLLEGE OF PHARMACY offers a two- or three-years course of study leading to the degree of Pharmaceutical Chemist. This college also offers graduate work leading to the degrees, Master of Pharmacy and Doctor of Pharmacy.



## The Board of Regents

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C. D. DECKER, AUSTIN,  
Secretary of the Board

# Executive Officers

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## THE UNIVERSITY

CYRUS NORTHROP, LL.D., *President*

ERNEST B. PIERCE, B.A., *Registrar*

C. D. DECKER, *Purchasing Agent and Secretary of the Board of Regents*

## THE COLLEGES

JOHN F. DOWNEY, M.A., C.E., *Dean of the College of Science, Literature and the Arts*

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ALFRED OWRE, D.M.D., M. D., *Dean of the College of Dentistry*

FREDERICK J. WULLING, Ph.M.D., LL.M., *Dean of the College of Pharmacy*

## LIBRARIES AND MUSEUMS

JAMES T. GEROULD, B. A., *Librarian*

LETTIE M. CRAFTS, B.L., *Assistant Librarian*

INA FIRKINS, B.L., *Library Assistant*

MARY S. MCINTYRE, B.S., *Librarian of School of Agriculture*

THOMAS G. LEE, B.S., M.D., *Librarian of Department of Medicine*

HUGH E. WILLIS, LL.M., *Librarian of the College of Law*

CHRISTOPHER W. HALL, M.A., *Curator Geological Museum*

HENRY F. NACHTRIEB, B.A., *Curator of the Zoölogical Museum*

## BUILDINGS AND GROUNDS

ALLEN W. GUILD, *Superintendent of Buildings*

EDWIN A. CUZNER, *Superintendent of Grounds*

# The University Council

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At the regular meeting of the Board of Regents of the University May 31st, 1905, a University Council was established according to the following plan:

I. The name of the body shall be the University Council. It shall consist of the President of the University, the Deans of the various colleges and schools, one elected representative from each college or school for each four hundred students or major fraction thereof, and one representative of the general alumni association.

II. The elected members shall serve for a period of one year. They shall be chosen by the various faculties at the time of the selection of standing committees. The representative of the general alumni association shall be chosen by that body at its annual meeting from among the alumni who are not members of the University.

III. The Council shall be authorized to—

a) Appoint the following committees or the faculty representation thereon:

The University auditing committee.

The University press committee.

The committee on athletics.

The committee on University relations to other institutions of higher learning.

The committee on health and sanitation.

The committee on commencement and other University functions.

The committee on catalogue, programs and courses of study.

The committee on student entertainments and social affairs.

and such other such committees as the general University interests may require.

b) Receive reports from such committees and to make such recommendations as may be required.

c) Consider and act upon any matter of general University interest beyond the province of a single faculty which may be referred to it by the President of the University or any faculty.

IV. The Council shall hold stated meetings upon the first Monday of October, December, April and June, and such other meetings as the President of the University may call.

The representatives to the Council from the several colleges of the University are as follows:

*The College of Science, Literature and Arts*

DEAN JOHN F. DOWNEY  
PROFESSOR F. L. MCVEY  
PROFESSOR WILLIS M. WEST  
PROFESSOR H. F. NACHTRIEB

*The College of Engineering*

DEAN F. S. JONES,  
PROFESSOR GEORGE D. SHEPARDSON

*The School of Mines*

DEAN WM. R. APPLEBY

*The School of Chemistry*

DEAN GEO. B. FRANKFORTER

*The College of Education*

DEAN GEO. F. JAMES

*The Graduate School*

DEAN H. T. EDDY

*The College of the School of Agriculture*

DEAN WM. M. LIGGETT  
PROFESSOR HARRY SNYLER

*The College of Law*

DEAN WM. S. PATTEE  
JUDGE A. C. HICKMAN

*The College of Medicine and Surgery*

DEAN F. F. WESBROOK  
PROFESSOR THOMAS G. LEE

*The College of Homeopathic Medicine and Surgery*

DEAN EUGENE L. MANN

*The College of Dentistry*

DEAN ALFRED OWRE

*The College of Pharmacy*

DEAN FREDERICK JOHN WULLING

# University Council Committees

***The University Auditing Committee.***

Professors Anderson, Sigerfocs, Springer, Fletcher, Owre.

***The Committee on Athletics.***

Professors Wesbrook, Palge, Brooke, West, Harding.

***The Committee on Grounds and Sanitation.***

Professors Wesbrook, Reynolds, Bass, Flather, Sideaer.

***The Committee on Catalogue, Programs and Courses of Study.***

Professors Frankforter, McVey, Pattee, Jones, Snyder, Appleby, Lee.

***The Press Committee.***

Professors Schaper, Erdmann, Constant, Snyder, James.

***The Committee on Commencement and other University Functions.***

Professors Nachtrieb, Pattee, Eddy, Lee, Owre, Washburn, Schlenker.

***The Committee on Student Entertainments and Social Affairs.***

Professors Frankforter, Pike, White (S. M.), Bass, Willis.

***The Committee on University Relations to other Institutions of Higher Learning.***

Professors Downey, Folwell, Green, Lee, MacMillan.

***The Committee on University Extension and University Lectures.***

Professors James, MacMillan, Mann, Hecker, McVey.

***The Committee on the Library.***

Professors Eddy, Downey, Jones (D. P.), West, Lee, Jones (F. S.), Fletcher.



# CALENDAR FOR 1906-1907

1906

1907

## JULY

S.	M.	T.	W.	T.	F.	S.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

## AUGUST

..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

## SEPTEMBER

..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

## OCTOBER

..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

## NOVEMBER

..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..
..	..	..	..	..	..	..

## DECEMBER

..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

## JANUARY

S.	M.	T.	W.	T.	F.	S.
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..	..	..	..	..	..	..

## FEBRUARY

..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	..	..
..	..	..	..	..	..	..

## MARCH

..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

## APRIL

..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	..	..	..	..
..	..	..	..	..	..	..

## MAY

..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

## JUNE

..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

# The Department of Medicine

The Department of Medicine includes the following named colleges:

*The College of Medicine and Surgery.*

*The College of Homeopathic Medicine and Surgery.*

*The College of Dentistry.*

*The College of Pharmacy.*

Each college is distinct in the government of its internal affairs, has its own faculty and an independent curriculum, save in the studies of anatomy, physiology, chemistry, histology and embryology. These studies, so far as they are required in the various courses, are pursued by all students of the department in common.

## BUILDINGS AND EQUIPMENT.

The department is resident in six buildings, five of which are situated upon the University Campus, viz: Medical hall, the Medical Science building, the Laboratory of Chemistry, the Laboratory of Anatomy and the Institute of Public Health and Pathology. In addition, two more buildings, a University Hospital and a building for Operative Surgery, are provided for and will be erected.

Medical hall contains the offices of the dean and secretary of the college of medicine and surgery, and of the deans of the college of homeopathic medicine and surgery and of the college of dentistry; a large amphitheatre and lecture rooms for the several colleges, the library and reading room of the department, the laboratory of materia medica, the operating rooms and laboratories of dentistry and the dental infirmary.

The Medical Science building is a large three-story and basement building, 75 x 150 ft., especially designed for laboratory uses. The south wing of the building is occupied by the college of pharmacy and the department of physiology. It contains the office and private laboratory of the dean of the college of pharmacy, the pharmaceutical and botanical laboratories, the laboratory of organic chemistry, with preparation and stock rooms. A large lecture amphitheatre, especially arranged for demonstrative work in physiology, the laboratories of experimental physiology and of physiologic chemistry, the offices, library and recitation rooms of this department are also situated in this wing. Upon the basement floor are laboratory stock

rooms, work shop, and the animal rooms devoted to physiologic purposes.

The north wing and center are occupied by the department of Histology and Embryology. Each of these branches has its large, well-lighted laboratories, preparation rooms and private study rooms for research. In addition there are lecture and recitation rooms, smaller laboratories for micro-technique and neurology; animal rooms and operating rooms for experimental work; rooms for photography and photomicrography, for reconstruction work and the making of models and charts; chemical laboratory, departmental library, a vault for the storage of the very valuable collection of series of embryos and sets of histological slides; store rooms and the offices of the professors and assistants.

The Laboratory of Medical Chemistry is a one-story brick building, devoted entirely to the use of this department. It is equipped with amphitheatre, laboratories, preparation rooms, store rooms, and private offices of the professor and assistants.

The Laboratory of Anatomy is a new two-story and basement building, 35 x 60 feet. In the basement are the morgue, injecting room, cold storage vaults, and engine and apparatus for the carbon dioxide freezing plant. On the first floor there is an amphitheatre seating one hundred and seventy-five students, the private offices of the professors and instructors, a private dissecting room and a small laboratory for research work. The entire second floor is devoted to laboratories for practical work in anatomy.

The Institute of Public Health and Pathology, now almost completed, will be ready for occupancy for the year 1906-07.

The building, which is 213 feet over all and 100 feet deep in the central portion, consists of a central main portion 60 by 100 feet, with north and south wings each 56 by 75 feet.

In the south wing are housed the State Board of Health laboratories, which are connected by an underground passage with the adjacent Laboratory of Animal Research of the Minnesota State Board of Health. This wing also contains a suite of rooms for a Pasteur Institute in which the special treatment of and research in rabies will be carried on. Diagnostic laboratories are provided for the bacteriological, chemical and pathological work of the State Board of Health, workshops for the repair and making of special apparatus, unpacking, storage, shipping, washing and media rooms are also available. Research laboratories and the offices and special laboratories of the professional members of the staff are here provided together with vaults for records and offices for the clerical staff.

The central portion and north wing provide for teaching and research work in the University Departments of Pathology, Bacteriology and Public Health. The central portion of the building is 100 by 60 feet, being three stories in front and four stories in the rear, where three of the stor-

ies are devoted to museum and library purposes. Here special books and periodicals are provided and interesting pathological and bacteriological specimens and materials, apparatus, methods of construction and other illustrative features of public health are on exhibition. On the first floor is a preparation room for the museum and lecture room, beneath the museum and adjacent to the lecture and autopsy room. Six special laboratories and offices are provided for the Professor of Surgical Pathology, Assistant Professor of Pathology, Demonstrator of Pathology and Bacteriology and the Assistant Director of the State Board of Health Laboratory. The remainder of the central portion is occupied by the lecture and autopsy amphitheatre, special research laboratories, photographic laboratories and a cold storage plant.

In the north wing the main teaching laboratory occupies the full floor space of 75 by 56 feet. It is lighted on three sides and by a skylight and is divided by low partitions into twelve loges, each intended for the use of a group of students. Each loge is fully equipped with all apparatus and supplies which the students may need in the practical work of pathology, bacteriology or public health, so as to render each group independent. A coat room and a room for the distribution of supplies open off the main laboratory. Beneath this is a similar students' research laboratory containing six loges which are to be used for the teaching of such special courses as Pathology of Tumors, Neuro-Pathology, practical Public Health laboratory work, etc. Opening off this is a special laboratory for the teacher in charge, for the issuing of supplies and also a coat room. Other special laboratories, including rooms for the preparation and storage of media and the storage of stock cultures of bacteria, and living quarters for the janitor are also in this wing.

A University Hospital upon the Campus has been provided for through a bequest by the widow of the late Dr. A. F. Elliott; this money, amounting to over \$125,000.00 will be used in the construction of a large, thoroughly equipped hospital designed with especial reference to teaching purposes.

The last Legislature provided for a building adjacent to the Medical quadrangle which when completed will give fine accommodation for operative surgery, pharmacology, an animal hospital and for the storage and breeding of animals.

The University Clinical Building is situated in a part of the city most favorable to the development of an out-door service and, at the same time, accessible to the students. It is of two stories and covers 40x150 feet. It affords ample floor space for amphitheatres, waiting rooms, dispensary and class rooms for each of the clinical branches. Wards and laboratories, in which section work in medical and surgical diagnosis can be conducted, have been equipped.

The Department of Medicine is in intimate relationship, through its sev-

eral faculties, with the numerous hospitals, infirmaries and dispensaries of the cities of Minneapolis and St. Paul. Through these agencies it utilizes, for the benefit of its students, the clinical material of these two large cities with a population of 500,000 people. The location of the University between two interurban car lines enhances the value and convenience of these clinical opportunities.

A medical library, containing 4,000 volumes and supplied with current periodicals, is open to all the students of the department. The collection has been chosen with special regard to the need for reference work and collateral reading. The general library of the University and the public and medical libraries of Minneapolis and St. Paul are also open to the students of this department.

## College Calendar, 1906-1907

The University year will hereafter open on the second Tuesday in September, and close on the second Thursday in June.

### FIRST SEMESTER.

SEPTEMBER	10	Matriculation begins.
"	10 to 17	Registration and assignment of seats, benches and lockers.
"	"	Entrance examinations.
"	"	Conditioned examinations.
"	18	Classes called for regular work. Eighteenth annual session.
NOVEMBER	29	Thanksgiving Day. Recess three days.
DECEMBER	22	Holiday recess begins.
JANUARY	8	Work resumed in all departments.
"	28 to 31	Semester examinations.

### SECOND SEMESTER.

FEBRUARY	5	Second semester begins.
"	12	Lincoln's Birthday—holiday.
"	22	Washington's Birthday—holiday.
"	27	Examinations begin.

### COMMENCEMENT WEEK 1907.

SUNDAY	June 9	Baccalaureate Service.
MONDAY	June 10	Senior Class Exercises.
TUESDAY	June 11	Senior Promenade.
WEDNESDAY	June 12	Alumni Day.
THURSDAY	June 13	Commencement Day—The Thirty-fifth Annual Commencement.
FRIDAY	June 14	Summer Vacation Begins.



# The College of Dentistry

## FACULTY

CYRRUS NORTHROP, LL. D., *President.*

ALFRED OWRE, D. M. D., M. D., C. M., *Dean, Professor of Operative Dentistry and Metallurgy.*

THOMAS B. HARTZELL, M. D., D. M. D., *Professor of Clinical Pathology, Therapeutics and Oral Surgery.*

OSCAR A. WEISS, D. M. D., *Professor of Prosthetic Dentistry and Orthodontia.*

JAMES O. WELLS, A. M., D. M. D., *Professor of Crown and Bridge-Work and Porcelain Art.*

E. FRANKLYN HERTZ, D. M. D., *Professor of Dental Anatomy and Prosthetic Technics.*

CHARLES A. ERDMANN, M. D., *Professor of Anatomy.*

RICHARD O. BEARD, M. D., *Professor of Physiology.*

THOMAS G. LEE, A. M., M. D., *Professor of Histology and Embryology.*

FRANK F. WESBROOK, M. A., M. D., C. M., *Dean College of Medicine and Surgery, Professor of Bacteriology and Pathology.*

GEORGE B. FRANKFORTER, M. A., Ph. D., *Dean of the School of Chemistry, Professor of Chemistry.*

CHAS. F. SIDENER, B. S., *Professor of Chemistry.*

EDWARD E. NICHOLSON, M. A., *Assistant Professor of Chemistry.*

EVERHART P. HARDING, M. S., Ph. D., *Assistant Professor of Chemistry.*

WINFIELD S. NICKERSON, Sc. D., *Assistant Professor of Histology, Chemistry Assistant.*

FRANK R. WRIGHT, D. D. S., M. D., *Lecturer on Anaesthesia and Chief of Anaesthesia Clinic.*

MARY V. HARTZELL, D. M. D., *Instructor in Comparative Dental Anatomy.*

H. M. REID, D. D. S., *Instructor in Prosthetic Dentistry.*

JAMES M. WALLS, D. M. D., *Instructor in Operative Technics, and Demonstrator of Operative Dentistry.*

FRED S. YAEGER, D. D. S., *Instructor in Crown and Bridge-Work*

J. FRANCIS SCHEFCIK, B. S., Ph. G., M. D., C. M., *Instructor in Materia Medica.*

NORMAN J. COX, B. S., D. M. D., *Instructor in Operative Dentistry.*

DON DUVELLO RIDER, D. M. D., *Instructor in Prosthetic Technics.*

ARTHUR B. ALLEN, D. M. D., *Instructor in Operative Technics.*

AMOS C. WELLS, B. A., D. D. S., *Assistant Demonstrator in Histology and Dental Anatomy.*

ANDREW J. WEISS, *Instructor in Technics.*

E. R. HARE, M. D. *Prosector of Anatomy.*

M. RUSSELL WILCOX, M. D., *Demonstrator in Physiology.*

GEORGE D. HAGGARD, M. D., *Instructor in Physiology.*

IRA HARRIS DERBY, B. S., *Instructor in Chemistry.*

IRA HARRIS DERBY, B. S., *Demonstrator in Chemistry.*

LILLIAN COHEN, M. S., *Instructor in Chemistry.*

ALBERT D. WILHOIT, B. A., *Instructor in Chemistry.*

RODNEY WEST, B. A., *Instructor in Chemistry.*

HAROLD M. NEWTON, *Instructor in Chemistry.*

M. L. NICKERSON, A. M., M. D., *Instructor in Histology.*

R. H. MULLIN, B. A., M. B., *Demonstrator in Pathology and Bacteriology.*

FRANK W. SPRINGER, E. E., *Lecturer on Electricity and Its Uses in Dentistry.*

H. V. MERCER, LL. M., *Lecturer on Jurisprudence.*

A. L. MOORE, *Infirmery Clerk.*

## General Information, Rules and Regulations

Note: The College of Dentistry of the University of Minnesota is a member of the National Association of Dental Faculties, and its diplomas are recognized by the Dental Examining Boards of every state.

### MATRICULATION AND REGISTRATION.

After matriculating with the registrar of the University and payment of fees, students will be assigned seats, benches and lockers *in the order of their registration with the dean of the college.*

No one is recognized as a student of the school or permitted in the classes, until his receipts are presented to and countersigned by the Dean; this applies to both semesters.

Students shall have their registration completed *not later than the day previous to the day set for regular work to begin.*

### REQUIREMENTS FOR ADMISSION.

The requirements for admission to the College of Dentistry are graduation from an accredited four-year high-school course, or its equivalent, and a credit in manual training. Failing to have the latter, the prospective student will be required to demonstrate, by test, the possession of mechanical capability.

It is expected that the credits shall include at least one year's work in latin.

The "equivalent" of a high-school graduation will be twelve one-year credits; a "credit" representing the ground covered in a high-school study, for a course of at least thirty-six weeks, five recitations per week.

Students wishing to matriculate in this school, must present credentials signed by a city, county or state superintendent of schools, a principal of an accredited high school or academy, or the state high-school board.

A regulation blank, upon which to make out these certificates, will be found inside back cover of this Bulletin.

Students not having the above credentials, or an insufficient number of them, may take examinations before a committee appointed by the president, from the college of science, literature and arts, of the university.

Examinations are held only in the English language.

### ADVANCED STANDING.

Applicants for advanced standing must present satisfactory evidence

of possessing the preliminary educational qualifications required of the class they desire to enter.

They must also satisfy the professors of the branches from which they wish to be exempt, that the work pursued by them in other institutions was equal in scope and amount to that passed by the class they propose to enter.

No credits are accepted unconditionally, the Faculty reserving the privilege of examining any applicant when deemed necessary.

All certificates pertaining to advanced standing must be presented to the dean who will send them to the respective professors for acceptance or report of further requirements for acceptance.

Students coming from other schools must make up their technic conditions under supervision of the instructors of this school, *at the convenience of the instructor.*

One-year credit will be allowed graduates in medicine, but the dental technic branches of the first year must be taken and completed before advanced work in these branches can be entered upon, and the courses in dental pathology, dental histology and bacteriology taken as they occur in the curriculum.

When a student, for any cause, transfers from one college to another of the National Association of Dental Faculties, his certificate of attendance and standing must be verified by the dean of the school he withdraws from. This is done by correspondence between the executive officers of the two schools.

### FEES.

The annual fee is one hundred and fifty dollars. (\$150.00). It includes all charges for matriculation, lectures, laboratory courses, dissections, technic materials, microscopes and graduation.

One-half of this fee will be payable when the student matriculates. The accountant's receipts for the portion will entitle the holder to take entrance examinations and to classify. The second half will be payable at the opening of the second semester. These receipts must be presented to, and countersigned by the Dean before entering upon the work of each semester.

A deposit of five dollars (\$5.00) will be required in addition to the first semester fee, to cover loss of and breakage or damage to college property. This will be returned at the end of the year, providing there is no charge against the student. This fee is to be deposited with the University accountant each year when the student matriculates.

If the applicant fails to pass the entrance examinations, his fee will be returned by the accountant.

After having entered upon the course of study, fees are not return-

able, and no rebate will be recommended should a student discontinue work, but the faculty may recommend the application of a part to the succeeding year.

Students who fail to pass off conditions at the beginning of the year succeeding the one in which they were incurred, will be charged five dollars (\$5.00) for each examination thereafter until they are removed.

Senior students failing to graduate, will be required to pay a fee of fifteen dollars (\$15.00) for each branch examined in or taken subsequent to the close of the session in which the failure occurred. A fee of fifteen dollars (\$15.00) will also be charged for the completion of each branch of unfinished laboratory or practical work.

Special and graduate students will pay to the accountant a fee of thirty dollars per year for each study they elect to pursue, and additional fees, varying from ten to thirty dollars, for each laboratory course they may enter.

### CONDITIONS.

Examinations of conditioned students and of applicants for advanced standing, in the studies of the first and second years, will be held during the first week of the semester. No student, with an entrance condition, will be allowed to register for any junior subject.

Students will not be permitted to take advanced work in any graded study, until they have passed the lower branch.

No one can be classed as a Junior or Senior with more than two conditions.

Students who carry conditions into a succeeding year, may find a resultant conflict of study hours. In that event they will give preference to the unfinished studies of the lower or conflicting course.

No student will be eligible to final examinations in any year, who carries conditions of a previous year unremoved.

*Candidates for graduation who carry conditions in studies of previous years, must remove these conditions at the end of the first semester in order to be eligible for final examinations.*

### STANDING.

The standing of students is determined by the results of recitations, written examinations, laboratory and practical work. It is indicated by the terms (P), "passed"; (I), "incomplete"; (C), "conditioned"; or (F), "failed." The mark of "failed" indicates that the work must be taken over in class.

### ATTENDANCE AND DISCIPLINE.

Attendance upon all lectures, and infirmary and laboratory hours, as

scheduled, is obligatory. A complete record of each student's attendance is kept, and all absences and tardinesses are noted.

Students to be eligible for final examinations, must have a record of not less than eighty per cent. in attendance.

Habitual absence, continued indifference to study, or persistently poor scholarship, may subject the student to temporary or permanent suspension.

All laboratory courses must be taken in full and must invariably be entered during the first week in which they begin.

The connection of any student with this college, may be terminated at any time, without a return of fees, whenever such action may be advisable on the ground of immorality or disorderly conduct, or a failure to conform to any of the established rules.

Students detected in the use of outside help, as notes, etc., in quizzes or examinations, or of rendering assistance to other students during examinations, will be subject to suspension for the remainder of the semester. The possession of any secret aids while under examination, will be deemed presumptive evidence of guilt, and will subject the student to the same penalty as if detected in using them.

Any student detected in stealing, will be permanently expelled from the college, and be handed over to the civil authorities to be dealt with according to the law.

The practice of dentistry by students, except under the direct supervision of a preceptor, is prohibited by law in the state of Minnesota, and a rule of the National Association of Dental Faculties, to which this college belongs, reads as follows: "Students in attendance at colleges of this Association are required to obey the laws regulating the practice of dentistry in the various States, and, failing to do this, shall not be again received into any college of this Association." Any student detected in violating this rule will be suspended or expelled.

### INSTRUMENTS, BOOKS, TOOLS AND MATERIALS.

All students are required to provide themselves with instruments, books, tools and materials as prescribed by the college.

### BREAKAGE AND LOSS.

In each laboratory course the student will be assigned a certain amount of apparatus and material, for which he will give a receipt.

For apparatus and material attaching to his laboratory desk he will also be held responsible. At the end of each course, if such apparatus and material are restored in good condition, this receipt will be returned to him.

A deposit of five dollars will be made with the accountant each year, by



every student, at the time of enrollment as a caution fee. This fee is intended to cover the cost of unnecessary damage in the college buildings and of breakage and loss of laboratory apparatus and materials. It will be returned to the student at the close of each year, minus the cost of articles assigned to him, which are not returned in good condition, or of damage to college property for which he is individually responsible. If responsibility for such damage cannot be individually fixed, a pro rata charge upon all students will be made.

*For schedule of lectures, announcements, changes in college rules, etc., see bulletin board.*

*Rules and regulations of the infirmary and laboratories are posted in their respective places.*

### CURRICULUM.

The course in the college of dentistry leads to the degree of doctor of dental surgery. It covers a period of three years of collegiate study, each year representing nine months in actual attendance.

The studies are graded, so far as practicable, throughout the three years, and this grading is arranged with careful reference to the relation which the subjects naturally bear to each other, as follows:

#### FIRST YEAR.

Anatomy, dental anatomy, comparative dental anatomy, histology and embryology, physiology, chemistry, prosthetic technics.

#### SECOND YEAR.

Anatomy, materia medica, bacteriology and pathology, clinical pathology and therapeutics, operative dentistry, prosthetic dentistry, orthodontia, crown and bridge work.

#### THIRD YEAR.

Electricity, metallurgy, physical diagnosis, oral surgery, operative dentistry, prosthetic dentistry, orthodontia, crown and bridge work, dental jurisprudence.

### SIX YEARS COURSE.

Beginning with the year 1906-7, the University will offer an optional six years course of study. The first three years of the course to be given in the college of science, literature and the arts. The last three years to be given in the college of dentistry. It leads to the bachelors degree at end of the four first year and to the degree of doctor of dental surgery at the end of the six years course.

# Course of Instruction

## ANATOMY.

### *Osteology.*

Lectures and recitations upon the human skeleton and supplementary work on the osteology of domestic mammals; three hours each week, for 10 weeks of first semester. Practical study of the skeleton, followed by recitations from the specimen, taken by the class, in sections; 2 hours each section, for 10 weeks, first semester. Required of all first year students.

### *Syndesmology.*

Lectures, recitations and laboratory demonstrations. Three hours each week, for 4 weeks, first semester.

### *Myology and angiology.*

Lectures and recitations covering the entire muscular and arterial systems of the human body, with a supplementary study of comparative myology; 3 hours each week, 16 weeks. Laboratory work consists in identifying the muscles of the human body on dissected preparations and showing their actions. Class, in sections, 4 hours each week for 5 weeks.

### *Splanchnology.*

Descriptive and topographical anatomy of the thoracic viscera, the alimentary and urino-genital organs. Lectures and recitations, 3 hours each week, for 10 weeks.

### *Descriptive and surgical anatomy.*

Head, neck, trunk and extremities. Lectures and recitations, 3 hours each week for 12 weeks.

### *The nervous system.*

Cerebro spinal axis and its membranes: the cranial and spinal nerves; the sympathetic nervous system, and the special-sense organs. Lectures and recitations, 3 hours each week for 8 weeks.

*Dissecting.* The work extends over a period of eight weeks, requiring 15 hours each week. The dissection of the entire human body is required. The method of work follows that laid down in Holden's Manual of Dissections.

## DENTAL ANATOMY.

The subject is taught by a thorough laboratory course, in which the student studies the teeth by dissection, modeling, carvings and drawings. In the study of dental anatomy, human and comparative, the definition, terminology, notation, form and arrangement of the teeth will be fully considered: also macroscopic and microscopic characteristics of sections, including the study of the relation of enamel to dentine and of the pulp canal.

In the study of structural anatomy, teeth will be selected and mounted upon wooden blocks. They will be filed down until the pulp chamber and canals are exposed, and drawings from actual measurements of the different aspects will then be made and carefully studied. Opportunity for the study of microscopic sections and lantern slides will also be afforded. The didactic instruction will be illustrated by "chalk talks," lantern slides, lectures, heroic models and skulls.

The standing of the student will be determined by marks given on the cutting of sections, models, drawings and recitations. Lectures and recitations, covering the influence of form and arrangement of the teeth upon caries will also be given.

## COMPARATIVE DENTAL ANATOMY.

The instruction in this subject embraces a comparative study of animal life, giving special attention to number, form and arrangement of teeth, and their

adaptation to food habits, ranging from the horny teeth of invertebrates, to the complex tooth-forms of the most highly specialized animals of the present time. The lectures will be illustrated with the stereopticon, casts, models and skulls.

### HISTOLOGY AND EMBRYOLOGY.

This course will consist of lectures, recitations, laboratory work and demonstrations and will include a study of the structure and properties of protoplasm; the cell, its structure and properties, cell division, reproduction, ovum, spermatozoon and formation of blastoderm. A study of the structure and life history of certain type forms of unicellular animals and plants as amoeba, paramoecium yeast, spirogyra, etc., simple metazoa, as hydra, etc.; consideration of the structure of vertebrates; the tissues, as epithelium, connective tissue, cartilage, bone, etc., muscle, nerve, blood and lymph; vascular and lymphatic system. The teeth, enamel, dentine, cementum, pulp, etc. A general outline of the development of the embryo; the formation of the head; development of the jaws, teeth, oral cavity, glands, etc.

N. B.—Recitations, four hours per week; laboratory, six hours per week.

### PHYSIOLOGY.

The subject is taught by recitations and lectures illustrated by practical demonstrations. These embrace the discussion, and as far as possible, the observation of physiological ingredients of the animal body; of the physiology of cell life or the fundamental properties of the cell; the nutritive media, blood, lymph and chyle; of the elementary functions of the nervous system; of the muscular tissues; and the epithelial tissues; of the vascular mechanism; of the alimentary canal; of the organs of secretion, excretion and respiration.

### CHEMISTRY.

#### *Course I. General Chemistry.*

PROFESSOR FRANKFORTER.

Lectures and laboratory work. The course includes a detailed study of chemical and physical properties of the non-metals and their more important compounds, with an introduction to organic chemistry.

#### *Course II. Inorganic Chemistry.*

PROFESSOR FRANKFORTER, MR. WEST AND MR. BADGER.

This course is arranged for those who have already had an elementary course in chemistry. The course includes an introduction to physical chemistry with special reference to the laws of solutions and electrolytic dissociation theory. This work is followed by a systematic study of the non-metals from the general standpoint of the periodic law. Special attention is given to the relationship between the different elements and their analogous compounds.

#### *Course III. Inorganic Chemistry. (Continuation of course II.)*

PROFESSOR FRANKFORTER, MR. WEST AND MR. BADGER.

This course consists of lectures, recitations and laboratory work on the metals. Considerable time will be devoted to those metals which are of special importance to the dentist.

#### *Course IV. Qualitative Analysis.*

ASSISTANT PROFESSOR NICHOLSON, MR. ANDERSON AND MR. WILHOIT.

Lectures, recitations and laboratory work. The course includes the general reactions of the metals and the qualitative separation and identification.

#### *Course V. Qualitative Analysis.*

ASSISTANT PROFESSOR NICHOLSON, MR. ANDERSON AND MR. WILHOIT.

Lectures, recitations and laboratory work. Reactions, separations and identification of the acids.

For work in other special or technical lines of chemistry, numerous courses are offered (see Bulletin of the School of Chemistry). Facilities for research work are also afforded in a large number of lines.

The analysis of the urine is dealt with under physiological chemistry in the Department of Physiology, in the pathology of the urinary system in the Department of Pathology and in the clinical laboratories in connection with the microscopy of the urine.

## MATERIA MEDICA.

This subject is covered as thoroughly as its importance demands. The writing and correct composition of prescriptions is an important feature. Particular attention is devoted to all therapeutic measures pertaining to dentistry. Practical work consists of the study of crude drugs and preparations, with demonstrations of all the pharmaceutical processes of importance.

## BACTERIOLOGY AND PATHOLOGY.

*Bacteriology.* Lectures, recitations and laboratory work, a short general survey of the problems brought to light by bacteriology, and general methods and technique involved, will be followed by special study of certain micro-organisms, such as pyogenic cocci, B. tuberculosis, B. diphtheriae, etc. These studies will be pursued by means of actual cultivation on the various media, the making and examination of microscopic preparation of pure culture, and both cultivation from and microscopic examinations of infected tissues and fluids of the body, by the students themselves.

*Pathology.* Lectures, recitations and laboratory work. Special study of inflammations and histological changes occurring in the tissues and fluids, constitute the major portion of this course. Some attention is given to the degenerations and the subject of tumors with special reference to the face and oral cavity. Students prepare and examine many of the specimens and receive loan slides of the rarer types, or those difficult of preparation.

## PATHOLOGY AND THERAPEUTICS.

The instruction in this branch will begin with a consideration of the terminology belonging to the subject, followed by the presentation of the lesions of inflammation, local and general, and the degenerate change in the tissues.

The general character of tumors, practical consideration of pathological dentition, interstitial gingivitis, (pyorrhoea alveolaris) pulpitis, pulp nodules, secondary dentine, pericementitis, alveolar abscess, caries of jaw and necrosis, dependent on a diseased condition of the teeth, the various inflammations of the oral cavity, including syphilis and tuberculosis, will all receive due attention.

*Therapeutics.* This course is given by lectures and recitations, and clinically. The student being instructed in the special therapeutics of dental and oral diseases; systematic treatment in cases requiring it, receives due consideration. New remedies that give promise of value are fully studied and put to practical test in the infirmary, under direct supervision. Antiseptic and disinfectant methods as well as dental hygiene, also receive due attention.

## ORAL SURGERY.

The subject of oral surgery will be taught clinically and didactically. The large amount of clinical material presented at the infirmary, furnishes ample opportunity for practical demonstration. Students are required to take charge of cases and carry them through under the advice of the instructor in charge. The didactic lectures will include a full consideration of all the surgical lesions of the oral cavity and associate parts, including oral tumors and the reflex neuroses connected with the fifth pair of nerves; fractures of the maxillae; cleft palate and hare-lip; caries and necrosis of the jaws from constitutional causes; adenoid growths and nasal polypi in their relation to oral surgery; suppuration of the antrum; ulitis; epulis growths; fungoid pulp; ranula; exostosed teeth; ankylosis and dislocation, implantations, obturators, interdental and other forms of dental splints.

Arrangements have been made with several clinicians connected with the different hospitals of the city to give several clinics. An abundance of material representing all the different forms of diseased conditions of the mouth and associate parts is to be found in the infirmary service, which will be assigned to students for treatment under direction of the professor of oral surgery.

Clinical lectures on the cases presented will be given from time to time. These cases include alveolo-dental abscesses; caries and necrosis of the maxillary bones; diseased conditions of the antrum; interstitial gingivitis; dislocations and ankylosis; facial neuralgias; tumors of the mouth and associate parts, hare-lip; cleft-palate; implantation cases and fractures.

## PHYSICAL DIAGNOSIS AND ANESTHESIA.

The subject of physical diagnosis will be taught didactically and practically,

and will have direct bearing upon the subject of anaesthesia and will be as complete as its importance demands.

A course in urinalysis will be given in connection with this course.

The technics of anaesthetics, both general and local, receive full consideration. All anaesthetics are administered in the clinic, and full instruction concerning their use is given. The members of the senior class are required, under direction, to administer them and extract teeth under these agents.

#### OPERATIVE DENTISTRY.

Work in this department comprises didactic, technical and clinical instruction.

*Didactic.* A course of illustrated lectures, covering the entire field of operative dentistry, is given in the junior year; the subject is again thoroughly gone over with quizzes and conference work in the senior year.

*Technical.* During the junior year a technic course is given, the object of which is to teach as much as possible of operative procedure prior to actual work on patient.

*Clinical.* A part of the junior and all of the senior year is devoted to clinical practice; there is an abundance of clinical material, and the student has the opportunity to perfect himself by practical work in all branches.

#### PROSTHETIC DENTISTRY.

The work of the first year is almost entirely technical; only such lectures and demonstrations being given as to enable the student to carry on his work in the laboratory intelligently. The work comprises a consideration of impression materials, taking impressions, and making casts and models, making upper and lower retaining plates for a fellow student's mouth; and after which the upper is broken and repaired; making partial upper plate with rubber base, comprising the making of trial plate, taking bite, mounting case in articulator, grinding and arranging teeth for proper articulation, flasking, packing, vulcanizing and finishing. Making full upper and lower sets of teeth upon rubber base, using plain teeth and arranging same in accordance with the Bonwill-law of articulation; making full upper and lower swaged metal plates, comprising the making of models, molding in sand, casting dies and counterdies; swaging plate to fit model, soldering rim and grinding and polishing metal. Making lower cast-metal plate, comprising the making of models and moulds, casting and polishing.

*Didactic.* Lectures and recitations of the second year will cover the preparation of the mouth for artificial dentures, choice of impression materials, the various base-plates, their composition and preparation. Porcelain teeth, their composition, form and color as related to temperamental types, and their forms as adapted to the various base-plates.

The various methods of retention, and the indications and uses of the different forms of partial plates is fully considered.

*Technical.* Making upper swaged plate of german silver, mounting plain teeth thereon to articulate with model of lower natural teeth. Making upper combination swaged metal and rubber plate, mounting gum-section teeth thereon to articulate with lower cast metal plate. Making partial swaged metal plate reinforcement and clasps. Making partial upper swaged metal plate with teeth attached by soldering. Making lower cast metal plate, casting metal around lingual side of teeth and forming gum upon labial and buccal sides with pink rubber. Making lower swaged aluminum plate with turned rim.

*Clinical.* The student enters the infirmary upon completion of the technic course, and there puts into practice the principles acquired.

#### PROSTHETIC DENTISTRY—ADVANCED COURSE.

*Didactic.* Lectures and recitations upon the use, construction and adjustment of obturators and artificial vela in the treatment of cleft-palate cases. Continuous gum-work, construction and uses, will be fully illustrated and demonstrated.

*Clinical.* An excellent clinic is provided, enabling each student to make not less than twelve dentures, covering the various conditions usually met with in general practice. Cases of unusual occurrence appearing in the clinic will be utilized as special clinics for the advantage of the entire class.

#### ORTHODONTIA.

The work in the first year of a two-years' course is technical, with such



lectures and demonstrations as will enable the student to perform the laboratory work. In addition to this, the student will be required to attend the lectures given the third year class, so that upon entering the senior year to carry on a clinical case, he will have a general idea of the practice of orthodontia.

The technic course is thorough and complete in its scope, it being deemed necessary that the student should have the requisite skill to make regulating appliances, in order to properly place them in the mouth; in other words, it requires no more skill to make appliances than should be possessed to correctly place and operate them.

Furthermore, no system of "ready-made" appliances is considered wholly adequate or best adapted for the correction of all irregularities, thus the necessity for making them.

The technic work in this year includes a consideration of material for regulating appliances. German silver, its properties, annealing and tempering; drawing wire, making tubing and band material; constructing band with screw; jack-screws of different forms, rotation and expansion appliances, retractors and retainers.

The properties of steels, forging, hardening, tempering and polishing, the making of excavators and chisels, band drivers, band removers and wrenches or keys. Making taps for threading nuts, etc. Each operation is performed by the student after a demonstration by the teacher.

### ORTHODONTIA—ADVANCED COURSE.

*Didactic.* Lectures and recitations upon the classification of irregularities of the teeth; etiology, local and constitutional; evils arising therefrom; advisability of correction; methods of treatment, including a consideration of the positive or intermittent and constant forces.

The principles of application of force and anchorage are given special consideration, rather than appliances.

Retention and methods of accomplishing the same are fully considered.

*Clinical.* In this year an ample clinic affords opportunity for each student to treat cases of irregularity.

The correction of at least one case by each student is required. The student is also required to observe and inspect the cases of his classmates, thus enabling him to see a large variety of cases with their treatment.

The student will use such of the technic appliances as are adapted to the case in hand and make such new ones from the material left over from the previous year as the case may require.

### CROWN AND BRIDGE-WORK.

*Didactic.* Lectures and recitations will cover the subject of crown and bridge-work. All forms of crowns and bridges will be taken up in order and considered from theoretical and practical viewpoints.

*Technical.* The technics are arranged so as to include all the fundamental principles of crown and bridge-work. Each student in completing the course will be required to make one of the more important forms of crowns and dummies and to assemble them in bridges.

### ADVANCED COURSE.

*Didactic.* Lectures and recitations on the character, indication, and methods of handling porcelain in crowns and bridges.

*Technical.* The construction of porcelain crowns and bridges.

### METALLURGY.

A course of lectures and laboratory instruction is given in the senior year upon the most important metals with special work upon those used in dentistry.

#### USES OF ELECTRICITY IN DENTISTRY.

A course of laboratory instruction will be given upon the different forms of batteries, dynamos and motors in use in dental practice. Their construction, use, care and operation. Electricity as used in surgery and for therapeutic purposes, including application of the x rays, will be made clear by laboratory demonstrations and practical application.

### DENTAL JURISPRUDENCE.

A course of lectures will be given upon the special duties, obligations and



privileges of professional men, with respect to their patients, fellow practitioners and the general public. Laws relating to expert witnesses, cases of alleged malpractice, liabilities incurred from septic infection, etc., will have due consideration.

The enactments regarding the attainment of legal standing as practitioners in Minnesota and other states will also be fully explained.

#### DEGREES.

The degree of doctor of dental surgery is conferred by the Board of Regents upon the students who are recommended, by vote of the faculty, for graduation. Candidates for the degree must possess the following essential qualifications:

- (1) Twenty-one years of age.
- (2) Good moral character.
- (3) Three full college years spent in the study of dentistry; the third year, at least, in this University, and the remainder in this or other recognized schools of dentistry.
- (4) Satisfactory examinations passed in all branches of the curriculum.

*Text-books.*

Quain's Anatomy, 10th Edn., Vol. II, part I and II.  
 Morris' Anatomy.  
 Edinger's Anatomy of the Brain and Cord.  
 Gray's Anatomy.  
 Cunningham's Anatomy.  
 Broomell's Anatomy and Histology of the Mouth and Teeth.  
 Black's Dental Anatomy.  
 Tome's Dental Anatomy.  
 Underwood's Comparative Anatomy.  
 Thompson's Comparative Dental Anatomy.  
 Stohr's Histology.  
 Foster's Physiology.  
 Remsen's Inorganic Chemistry.  
 Long's Dental Materia Medica, Therapeutics and Prescription Writing.  
 Ware's Practical Therapeutics II Edn.  
 Burchard's Dental Pathology, Pharmacology and Pathology.  
 Marshall's Oral Surgery.  
 Tyson's Physical Diagnosis.  
 Turnbull's Manual of Anaesthetics.  
 Evans' Crown and Bridge-work.  
 Kirk's American Text Book of Operative Dentistry.  
 Black's Operative Dentistry.  
 Johnson's Principles and Practice of Filling Teeth.  
 Essiz's American Text Book of Prosthetic Dentistry.  
 Guilford's Orthodontia.  
 Hodgen's Practical Dental Metallurgy.

## EXPENSES.

	1st yr.	2d yr.	3d yr.
Tuition, Instruments, Tools and Books	\$200.00	\$350.00	\$175.00
Room, Board, Incidentals	200.00	200.00	200.00

This is a general average and few use more than \$1,500.00 for the entire three years.

## ALUMNI ASSOCIATION.

An association of the graduates of the college has its annual meeting during commencement week.

# Students

Graduates 1905—52.

Baker, Henry W., Wells.	Kubat, William, Blooming Prairie.
Bancroft, Merton Eugene.	LaDue, Thomas Irving, Fertile.
Delton, Wis.	Lukkason, Joseph, Rushford.
Barton, Harry Elijah, Flint, Mich.	Lyon, Harry David, Minneapolis.
Bennett, Charles Edward,	Maves, Herman Albert, St. Peter.
Granite Falls.	McIntyre, Ralph Emerson,
Bittner, Arthur Hugo, St. Paul.	River Falls, Wis.
Borgendale, Edward, Montevideo.	Miller, Charles Warren, St. Peter.
Bowe, John Francis, Waseca.	Moran, Michael Aloysius,
Brastad, Olaf William, Minneapolis.	Pine Island.
Brown, Thos. Andrew, Lake City.	Moskau, Gilbert, Mayville, N. D.
Bugbee, Clyde Sereno, Minneapolis.	Neison, Charles, Glencoe.
Burgan Frederick, Preston,	Nelson, Elof, Amor.
Minneapolis.	Newgord, Harry Clarence,
Burt, Leonard Henry, Chokio.	Minneapolis.
Carr, Alvin Eugene, Minneapolis.	Olson, Theodore John, St. James.
Casselman, Don, Huron, S. D.	Porter, Harold Ferdinand, Willmar.
Corson, Walter Hartley, Ada.	Putney, Charles A., Moorhead.
Curtin, James, Arlington.	Remele, Henry William, Sleepy Eye.
Deering, Joseph Wm.,	Sheehan, Thomas Vincent, Luverne.
West Superior Wis.	Shellman, Joseph Frederick, Fergus Falls.
Dittmarsen, John Elias, Irving.	Staples, Forest Edward, Howard Lake.
Doyle, Milo Hayden, Bellingham.	Strang, Cassius Clinton, Duluth.
Foster, Charles White, St. Paul.	Sweeney, Eugene Sylvester, Garfield.
Gillam, Clarence Gifford, Windom.	Taylor, William Knox, Minneapolis.
Hamlon, Chauncy Wilfred, Jackson.	Vandersaal, William, Pomeroy, Pa.
Hanson, Henry Alexander,	Wallace, Robert, Fergus Falls.
Fergus Falls.	White, Frank Denton, Minneapolis.
Ihle, Edward Anthony,	Youngberg, Everett LeRoy,
Eau Claire, Wis.	Cannon Falls.
Ingalls, Raymond Eugene, St. Paul.	
Johnson, Alfred C., Winthrop.	

3rd Year—35.

Ammundson, Frederick Arthur,	Morstain, William Basil,
St. Peter.	Minneapolis.
Anderson, Carl Ernfrid, Kenedy.	Nilson, Verner Hjalmar,
Baker, Harry Jacob, Rose Creek.	Minneapolis.
Bjorge, Oscar, Lake Park.	Olson, Carlton Percy, Minneapolis.
Blondell, Louis Dale, Spencer, Ia.	Rollin, Claus Albin, Minneapolis.
Boerner, Ernest Wm. F., Buffalo.	Rowe, Arthur Taylor,
Corser, Wayne Bliss, St. Paul.	Casselton, N. D.
Fortier, Stephen, Little Falls.	Selvig, Carlus, Rushford.
Frederickson, Marcus, Lakefield.	Smith, Walter Herbert, Fairfax.
Heddy, Ula Emil, Minneapolis.	† Styer, Matthias L., Caledonia.
Huntington, Walter Sandberg,	† Died, Jan. 2nd.
Marion, Ia.	Tomasek, Joseph Leo.,
Jung, William Richard, Fergus Falls.	Jackson Junction, Ia.
Junglaus, Edward Henry, Glencoe.	Turner, George Chester, Canton.
Kaasen, Kaare, Kristiania, Norway.	Wahlstrom, Isidor John,
Korfhage, Louis William, St. Paul.	Minneapolis.
Layne, James Thomas, Rushford.	Weaver, Mortimer R., Spencer, Ia.
Lestico, Alexander Cameron,	Wells, Amos Schumpert,
Glencoe.	Newberry, S. C.
Lier, Emil Hjalmar, Ashby.	Winther, Conrad Peter,
Malmgren, Robert Victor.	New Paynesville.
Minneapolis.	Woodbury, Leslie Maley,
Melvin, Merton R., Dumont.	Zumbrota.

## 2nd Year—33.

Aarness, Walter Stain, Montevideo.  
 Barnitz, Robert Andrew, Austin.  
 Bauer, Theo. Philip, Minneapolis.  
 Birnberg, Ansel, St. Paul.  
 Borgwardt, George, Peterson, Ia.  
 Britzhus, Harry Adams, M. A., M. S.,  
 Minneapolis.  
 Butler, Archibald B., Moline, Ill.  
 Carlaw, Allen Chester, Northfield.  
 Carpenter, Dwight Jefferson,  
 Minneapolis.  
 Conway, Steven Vincent,  
 Minneapolis.  
 Damon, Geo. Myron, Worthington.  
 Doely, Owen Eugene, Spring Grove.  
 Fitzgerald, Francis Gerald,  
 Lake City.  
 Griffith, Chas Arthur, Hector.  
 Harmon, Harry Weston, Faribault.  
 Heleire, Orlen, St. Paul.  
 Higgins, Clifford Crumbaugh,  
 Kirkwood.

Hollern, Edward John, Sauk Rapids.  
 Jones, Rolland Ralph, Minneapolis.  
 May, Clyde Luther, Young America.  
 Niemi, William, Superior, Wis.  
 Norwood, William, Balaton.  
 Page, Wright Benton, Minneapolis.  
 Pinney, Egbert Ralph, Mankato.  
 Purdon, Cleveland A.,  
 Wahpeton, N. D.  
 Ramstead, Henry Geo.,  
 Eau Claire, Wis.  
 Rauch, Charles, Minneapolis.  
 Rosendahl, Peter Oscar,  
 Spring Grove.  
 Seebach, Oscar Christian, Red Wing.  
 Smith, Nat Cyrus, Fair Haven.  
 Thomas, Thos. Heathcote,  
 Spencer, Ia.  
 Weaver, Homer Abraham,  
 Lancaster, Pa.  
 Zierold, Arthur Adelbert,  
 Granite Falls.

## 1st Year—66.

Andrews, Samuel, Minneapolis.  
 Bandelin, William John, Arlington.  
 Basford, Clarence Meredith, Austin.  
 Bergh, Charles John, St. Paul.  
 \*Bigue, Arthur Edmund, St. Paul.  
 Broderson, Clarence,  
 Fountain City, Wis.  
 Bunce, Elmer Wayland, Minneapolis.  
 Capron, Harry, Minneapolis.  
 \*Chapman, Edgar, Minneapolis.  
 Coleman, Lauren M., Ellendale, N. D.  
 Collins, Myron Eugene,  
 Spring Valley.  
 Conway, Jesse Francis, Lake City.  
 Countryman, Ralph William,  
 Minneapolis.  
 \*Danielson, Henry, Minneapolis.  
 Donald, Raymond Bristol,  
 Minneapolis.  
 Doris, John Raphael, St. Paul.  
 Ebersperger, Joseph Francis,  
 Minneapolis.  
 Emery, Valmer Charles,  
 Two Harbors.  
 Franta, Valentine Adolph,  
 Montgomery.  
 Grafslund, Edwin, Lake Park.  
 Hagberg, Gust Adolph, Brainerd.  
 Harrison, Francis Randall,  
 St. Cloud.  
 Hartman, Harry Leonard, Afton.  
 Herring, Guy, St. Paul.  
 James, Meredith Jay, Lake Crystal.  
 James, William Henry,  
 Lake Crystal.  
 Johnson, Geo. Lionel, Minneapolis.  
 Johnson, Joseph, Edina Mills.  
 Johnson, Renel Warren,  
 Cannon Falls.  
 Kaiser, Frederick John, Wells.  
 Kjelland, Joseph Almon, Rushford.  
 \*Knapp, Howard Eugene,  
 Oconto, Wis.  
 Knoche, Karl George, St. Paul.

Lange, Henry Frederick, Little Falls.  
 Lawton, Harry Comegys, St. Paul.  
 Leary, Daniel James, Portage, Wis.  
 Lier, Etdorf Menton, Ashby.  
 McMullen, John Stephen,  
 Hutchinson.  
 Madden, Fred M., Watertown.  
 \*Metcalf, Ray James, Fergus Falls.  
 Miesen, Peter James, St. Peter.  
 Mittwer, Arthur Edward,  
 Minneapolis.  
 Moore, Thomas John, Chatfield.  
 Munns, Herbert Allen, Minneapolis.  
 Olson, Charles John, Hastings.  
 O'Neill, James, Lake City.  
 Radermacher, Harley Adolph,  
 Barron, Wis.  
 Rayman, Frederick Luverne, Austin.  
 Remele, Herman Charles,  
 Minneapolis.  
 Ringnell, Ernest Berhrart,  
 Minneapolis.  
 Sandstrom, Carl L., Cloquet.  
 Schapler, John Earl, Pipestone.  
 Schmitz, Leroy Christian,  
 Jamestown, N. D.  
 Simon, Edwin James, Faribault.  
 Snyder, Lynn, Lake City.  
 Spurbeck, Lee, Two Harbors.  
 Tanner, Paul, Cannon Falls.  
 Trench, William, Dennison.  
 Van Dyke, Arthur Alexander,  
 Alexandria.  
 Varco, Lynn Gemmel, Austin.  
 Vaughn, William Henry,  
 Minneapolis.  
 Weible, Earl Bell, Weible, N. D.  
 Whitson, Abram Page.,  
 Packwauckee, Wis.  
 \*Wickstrom, Charles, Lisbon, N. D.  
 Will, Melville Bruce, Mapleton.  
 Williams, Louis, Ashland, Wis.

\*In attendance part of first semester.

Specials—16.

Barnett, Harvey Dwight, St. Paul.  
Blix, Adolph Leonard, Bagley.  
Bugbee, Clyde Sereno, Minneapolis.  
Burgan, Frederick Preston, Minneapolis.  
Dittmarsen, John Elias, Irving.  
Fagerstrom, Albert Harry, Minneapolis.  
Froelich, Geo. Henry, Winnebago City.  
Kendall, Ernest Clayton, Merillan, Wis.

Nelson, Geo. Andrew, Kasson.  
Olson, Theodore John, St. James.  
Schmidt, Adolph Robert, Springfield.  
Sheehan, Thos. Vincent, Luverne.  
Sivright, Guy Herbert, Hutchinson.  
Spurr, Stephen Howard, *M. D.*,  
Morris.  
Thomas, Howard Weed,  
Ellendale, N. D.  
Waiste, Chas. Edgar, Minneapolis.





University of Minnesota.  
COLLEGE OF DENTISTRY.

Recommendation for Admission from Accredited Schools.

Dated .....

Name ..... Write ALL names in full.  
Date of Birth ..... Birthplace .....  
Present Address .....

I hereby certify that the above named person has satisfactorily completed work in High School branches, as indicated below  
in the ..... course of the ..... High School (or Academy)  
Town (or City) of ..... State of ..... during the  
years ..... and was graduated .....

And further, believing him to be a person of good moral character and studious habits, I recommend that he be admitted to the Freshman Class of the COLLEGE OF DENTISTRY, University of Minnesota.

\*The school officer certifying to the credits below, will please draw a line through the branches not taken and enumerate others with time and credits in the school named.

STUDIES	No. Weeks Study	No. Hours per Week	Grade	TEXT BOOKS	REMARKS
ENGLISH 1st year (1) .....	.....	.....	.....	.....	.....
2nd year (1) .....	.....	.....	.....	.....	.....
3rd year (1) .....	.....	.....	.....	.....	.....
4th year (1) .....	.....	.....	.....	.....	.....
ELEMENTARY ALGEBRA (1) .....	.....	.....	.....	.....	.....
PLANE GEOMETRY (1) .....	.....	.....	.....	.....	.....
HIGHER ALGEBRA ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
SOLID GEOMETRY ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
LATIN, Grammar (1) .....	.....	.....	.....	.....	.....
Caesar, .... Books (1) .....	.....	.....	.....	.....	.....
Cicero .. Books (1) .....	.....	.....	.....	.....	.....
Vergil .. Books (1) .....	.....	.....	.....	.....	.....
GREEK, GRAMMAR (1) .....	.....	.....	.....	.....	.....
Anabasis, .... Books (1) .....	.....	.....	.....	.....	.....
Iliad .. Books (1) .....	.....	.....	.....	.....	.....
GERMAN GRAMMAR, 1st yr (1) .....	.....	.....	.....	.....	.....
LITERATURE, 2nd yr (1) .....	.....	.....	.....	.....	.....
FRENCH GRAMMAR, 1st yr (1) .....	.....	.....	.....	.....	.....
Literature, 2nd yr (1) .....	.....	.....	.....	.....	.....
HISTORY Ancient to 800 A. D. (1) .....	.....	.....	.....	.....	.....
Modern from 800 A. D. (1) .....	.....	.....	.....	.....	.....
HISTORY OF ENGLAND ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
SENIOR AMERICAN HISTORY ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
CIVICS ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
POLITICAL ECONOMY ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
COMMERCIAL GEOG. ( $\frac{1}{2}$ or 1) .....	.....	.....	.....	.....	.....
PHYSICS (1) .....	.....	.....	.....	.....	.....
CHEMISTRY ( $\frac{1}{2}$ or 1) .....	.....	.....	.....	.....	.....
PHYSIOGRAPHY [ $\frac{1}{2}$ ] .....	.....	.....	.....	.....	.....
BOTANY ( $\frac{1}{2}$ or 1) .....	.....	.....	.....	.....	.....
ZOOLOGY ( $\frac{1}{2}$ or 1) .....	.....	.....	.....	.....	.....
ASTRONOMY ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
GEOLOGY ( $\frac{1}{2}$ ) .....	.....	.....	.....	.....	.....
DRAWING (*), 2, 3, or 4) .....	.....	.....	.....	.....	.....
SHOP WORK (1, 2, 3, or 4) .....	.....	.....	.....	.....	.....
Other subjects included in Commercial, Manual Training, or other courses.	.....	.....	.....	.....	.....

The passing grade in this school is .....

.....Principal.

.....Present Residence.

- Twelve one year credits are required for admission. A "credit" represents the amount of work done in a high school course of thirty-six weeks, five recitations per week. Certificates to be accepted must indicate these facts. It is not essential to give the grade, but the subjects must be marked "Pass" to show they have been successfully completed.
- Students wishing to matriculate in this school, must present credentials signed by City, County or State Superintendent of Schools, a principal of an accredited High School or Academy, or the State High School Board.
- A separate blank must be filled out for each school attended. Additional ones furnished on request.
- All writing upon this certificate must be done with ink.

THE APPLICANT WILL ALSO FILL OUT WITH CARE THE FOLLOWING.

Name of parent or guardian.....  
Post-office address of parent or guardian.....  
How long since you attended school?.....  
What occupation have you been engaged in since then?....  
Have you had experience in mechanical pursuits, if so what? ..  
Have you a natural or acquired taste for mechanics?.....  
Is your eyesight good?..... Is your general health good? ..  
Give for reference, name, post-office address of your family physician, pastor, or some well known citizen of your town or city.  
.....

SEND THIS RECOMMENDATION AND APPLICATION DIRECTLY TO THE DEAN OF THE COLLEGE.

University of Minnesota



